French Ltd. Project

FLTG, Inc.
Crosby, Texas

MONTHLY PROGRESS REPORT

Submitted to:

U.S. Environmental Protection Agency - Region 6
and
Texas Natural Resource Conservation Commission

October, 1994

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Samples Dated October 3-31, 1994

Project I.D.	Date Received	Project I.D.	Date Received
S16D0003	10/03/94	M03A0278	10/24/94
M06C0019	10/05/94	M03A0279	10/24/94
S12B0008	10/05/94	M06C0020	10/24/94
M01D0046	10/06/94	M08C0008	10/24/94
M03A0269	10/06/94	M08D0010	10/24/94
M03A0270	10/06/94	S12B0009	10/24/94
M08A0018	10/06/94	S14C0003	10/24/94
M08B0006	10/06/94	M08D0011	10/25/94
M08C0007	10/06/94	S14C0004	10/25/94
M08D0009	10/06/94	S14D0004	10/25/94
M03A0271	10/07/94	S14D0005	10/25/94
M03A0272	10/10/94	S14D0006	10/25/94
M03A0273	10/10/94	S14D0007	10/26/94
M03A0274	10/11/94	S14D0008	10/26/94
M03A0275	10/12/94	S14D0009	10/26/94
M03A0276	10/24/94	S14L0023	10/27/94
M03A0277	10/24/94	M01D0047	10/31/94

1.0 INTRODUCTION

This report covers the activities of FLTG, Inc. and the French Limited Project for October, 1994. FLTG, Inc. manages the project for the French Limited Task Group of Potentially Responsible Parties.

During October, 1994, the project team focused on the following activities and issues:

- Flood preparation and response.
- Post flood site rehabilitation.
- Health, Safety, and Quality.
- Safety awareness.
- Contractor safety.
- HAZOP of daily work assignments.
- Detecting and correcting work place hazards.
- Response to changing site conditions.
- Safe lifting procedures.
- Slipping, tripping, and falling hazards.
- Safe work practices in congested conditions.
- Worker hygiene associated with floodwaters.
- Working around moving equipment.
- Treatment of Cell F water to meet effluent specifications.

- Land application of Cell D water.
- Backfill Cell F.
- Maintain DO, OUR, HMB, and plate count in Cell D.
- Lagoon remediation completion report.
- Vegetation evaluation in Cell E.
- Operation and maintenance of the aquifer remediation system.
- In-situ aquifer bioremediation.
- Injection water supply.
- INT zone remediation to the southwest.
- Potable water well sampling and analyses.
- Potable water supply in Riverdale.
- DNAPL feasibility study.
- Permeability testing of INT-11 containment wall.
- Water treatment plant operation and maintenance.
- Management of carbon blending system to maintain effluent quality.
- Operation of the data base management system.
- Brownwood property acquisition.
- Wetlands restoration site contractor selection.

- This report includes:
    - A summary of October activities, issues, and progress.
    - Lagoon dewatering/backfill activities, issues, and progress.
    - Groundwater and Subsoil Remediation activities, issues, and progress.
    - Groundwater Treatment Plant activities, issues, and progress.
    - Ambient Air Management status.
    - QA/QC status and data.
    - Site management activities, issues, and progress.
    - Wetlands restoration activities, issues, and progress.

2.0 SUMMARY

2.1 Summary of Activities and Progress

2.1.1 Health and Safety

There were no personal injury incidents.

All site workers earned the October safety bonus.

Conducted safety meetings and job inspections at the start of each shift; reviewed safety issues before starting all jobs.

All employees and contractors attended daily safety meetings.

Conducted daily mini-HAZOP of all specific jobs.

Supervision made 198 specific on-the-job safety contacts.

Emphasized slips, trips, and falls in congested work areas.

Inspected and certified all fire extinguishers.

Inspected all contractor equipment before on-site use.

Inspected all vendor delivery trucks before site entry.

Emphasized the hazards and precautions associated with working around moving equipment.

Conducted 22 specific health and safety inspections.

Logged all safety issues each shift; less than 24-hour response to all safety issues.

Continued lottery ticket daily safety awareness incentive program; all regular site employees and regular contractors receive a Texas lottery ticket each day; tickets can be "lost" due to safety violations; employee response continues to be excellent.

Conducted personnel exposure monitoring, and all results were within acceptable levels. The most recent results are in Table 2-1.

Implemented specific health and safety focus during flood preparation, response, and during post-flood rehabilitation: slippery conditions; overhead hazards; back and muscle strains; pinch points; poisonous plants, insects, and snakes; exposure to polluted floodwaters.

2.1.2 Quality/QAQC/Data Base Management

The total quality process was used. The status of the goals is shown on Table 2-2.

Raw data is being validated as per the plan.

The data base management system operated full on-line with no major problems or delays.

There were no data or reports rejected due to errors.

American Analytical continued to provide data on time.

All site operations were shut down due to the flood for 12 days.

There were no effluent excursions due to the flood. All QAQC data was secured.

2.1.3 Lagoon Remediation

Maintained a high level of biological activity in Cell D and in Cell F; OUR, HMB, and plate counts were high. Added O_2 to Cell D and Cell F using downdraft aerators. Bottom profiles indicate low levels of soft biomass in Cell D; there is some biomass in the northeast corner of Cell F.

Set up to stabilize the biomass in Cell F if necessary.

The Rochem unit treated and discharged about 1.5 million gallons of water; the Lefco units operated with only minor problems, but with more frequent cleaning cycles due to increased TOC and TSS in the Cell F water. The Rochem unit was shut down on October 18 due to the flood.

About 7,940 cubic yards of backfill were placed in Cell F.

The cypress trees in Cell E continue to perform better than the river birch trees.

Tested floodwall gate closure.

The floodwall gate was closed at 1:00 p.m. on October 17, 1994, as the flood levels increased.

The floodwall performed as per design; leaking was minimal; the wall was stable during the crest of the flood water.

Continued land application of "clean" Cell D water in the re-vegetated Cell E area.

2.1.4 Ambient Air Management

Ambient air quality was manually checked daily with portable analyzers, and no response action was required.

Air quality was continuously monitored in all potential exposure areas.

Time-integrated samples were collected in three work areas, and the results indicated no exposure; the data is shown in Table 2-1.

2.1.5 Aquifer Remediation

Monitored status of DNAPL plumes.

DNAPL flow to S1-12, S1-13 and S1-16 continues to be erratic.

DNAPL flow in S1-16 has remained low.

Replaced direct drive pump in S1-16 with an electric lift pump.

Continued work on DNAPL FS report.

Completed performance testing of INT-11 wall; the wall met the permeability requirements.

Continued routine S1 and INT oxygen and nutrient injection.

Increased INT zone injection rates by 20%.

Completed installation of an additional injection water supply well on the west end of the site.

Continued to evaluate ways to increase INT production rates.

Implementing a work plan to pressure fracture the INT zone near low producing INT wells.

Operated vacuum-enhanced pumping systems for INT wells.

Issued weekly well status and performance reports.

Inspected and adjusted all wells each day.

Continued daily maintenance of recovery and injection wells.

Completed monthly well measurements and sampling; TOC results show a steady decrease in concentration.

Maintained O_2 content of injection water at about 40-45 ppm.

Maintained phreatofilic trees in Cell E area for passive gradient control.

Continue pulse pumping in sections of the S1 zone South of Gulf Pump Road; the results continue to look positive; permanently shut off one more S1 production well that meets the clean-up requirements.

Sampled potable water wells along Maple Drive in Riverdale.

2.1.6 Groundwater Treatment

The carbon blending system operated with no problems; the amount of effluent water requiring carbon treatment decreased as the treatment plant influent water TOC decreased and as the biomass activity increased.

The water treatment plant operated 100% of the time.

The water treatment plant effluent data is shown in Table 2-3.

TOC input to T-101 continued to decrease as the flows from the wells inside the floodwall decreased and as the TOC decreased from most wells.

The water treatment plant was shut down on October 17, 1994, due to site flooding. Rehabilitation and clean-up were started on October 24, 1994.

The Water Treatment Plant was restarted on November 1, 1994, using manual level control; the biomass responded quickly, and effective operations was achieved within one day.

The process operators collected all the process water and ground water samples.

2.1.7 Wetlands Restoration

Continued plant species identification and sourcing.

Developed final site work plan.

Negotiated purchase of 1/3 interest in six lots in Brownwood.

Revised design to include the six lots. Started mobilization of civil contractor.

2.1.8 Site Management and Issues

Used the on-site laboratory to process all the operational control samples.

Reviewed lagoon and aquifer progress and issues in detail with EPA and TNRCC on a regular basis.

Validated all analytical data as per the QAQC plan.

Continued equipment salvage and sales; several site visits were made by interested parties.

Reviewed project status and issues each day to ensure focus on critical issues - safety, quality and cost.

Issued weekly cost, schedule, and maintenance reports.

Reviewed progress on issues and action plans each week.

Reduced technical support MH's.

Initiated flood preparation and response plan on October 16, 1994; secured and evacuated the site on October 17, 1994; re-entered site and started rehabilitation on October 23, 1994.

TABLE 2-1

Ambient Air Management
Time Integrated Exposure Data

Compound	PEL 8 hour PPM	M01D0047 13-Oct-94 GWT Operator % of PEL	GWT Operator PPM	M01D0047 13-Oct-94 Rochem Oper. % of PEL	Rochem Oper. PPM	M01D0047 13-Oct-94 Well Operator % of PEL	Well Operator PPM
Chloromethane	50	0.000	0.000	0.000	0.000	0.003	0.002
Bromomethane	5	0.013	0.001	0.015	0.001	0.007	0.000
Vinyl chloride	1	0.000	0.000	0.000	0.000	0.000	0.000
Chloroethane	1000	0.000	0.000	0.000	0.000	0.000	0.000
Dichloromethane	50	0.002	0.001	0.003	0.001	0.000	0.000
Acetone	750	0.002	0.016	0.002	0.013	0.002	0.012
Carbon disulfide	10	0.005	0.001	0.000	0.000	0.005	0.000
1,1-Dichloroethene	5	0.007	0.000	0.005	0.000	0.000	0.000
1,1-Dichloroethane	100	0.001	0.001	0.000	0.000	0.001	0.001
trans-1,2-Dichloroethe	200	0.001	0.003	0.001	0.002	0.001	0.002
Chloroform	10	0.026	0.003	0.000	0.000	0.013	0.001
1,2-Dichloroethane	10	0.005	0.001	0.000	0.000	0.003	0.000
2-Butanone	200	0.002	0.004	0.024	0.048	0.001	0.002
1,1,1-Trichloroethane	350	0.000	0.001	0.000	0.001	0.000	0.001
Carbon Tetrachloride	5	0.008	0.000	0.004	0.000	0.012	0.001
Vinyl acetate	10	0.000	0.000	0.000	0.000	0.000	0.000
Bromodichloromethane			0.000		0.000		0.000
1,2-Dichloropropane	75	0.000	0.000	0.000	0.000	0.000	0.000
cis-1,3-Dichloropropen	1	0.000	0.000	0.000	0.000	0.000	0.000
Trichloroethene	50	0.001	0.000	0.000	0.000	0.001	0.000
Dibromochloromethane			0.000		0.000		0.000
1,1,2-Trichloroethane	10	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	1	0.076	0.001	0.072	0.001	0.126	0.001
trans-1,3-Dichloroprop	1	0.000	0.000	0.000	0.000	0.000	0.000
2-Chloroethylvinyl ether			0.001		0.000		0.002
Bromoform	0.5	0.000	0.000	0.000	0.000	0.000	0.000
4-Methyl-2-pentanone	50	0.000	0.000	0.000	0.000	0.000	0.000
2-Hexanone	5	0.000	0.000	0.000	0.000	0.000	0.000
Tetrachloroethene	50	0.001	0.000	0.000	0.000	0.002	0.001
1,1,2,2-Tetrachloroet	1	0.000	0.000	0.000	0.000	0.000	0.000
Toluene	100	0.001	0.001	0.001	0.001	0.002	0.002
Chlorobenzene	10	0.000	0.000	0.000	0.000	0.000	0.000
Ethylbenzene	100	0.001	0.001	0.000	0.000	0.001	0.001
Styrene	50	0.000	0.000	0.000	0.000	0.000	0.000
Xylene (total)	100	0.000	0.000	0.000	0.000	0.001	0.001
Hexane			0.003		0.002		0.002

TABLE 2-2

Project Quality

Status as of 10/31/94		Goals	
Yes	1)	No OSHA recordable injuries.	
Attention	2)	100% compliance with all safety rules and procedures.	
Yes	3)	No citations for violations of applicable, relevant and appropriate regulations.	
Yes	4)	100% attendance (including subcontractors) at daily safety meetings.	
Attention	5)	Less than 24-hour response time on health and safety issues.	
Yes	6)	100% sign-in and security clearance.	
Yes	7)	No invalidation of reported data due to QA/QC issues.	
	8)	Spend less than:	MH/Month
Yes		• Direct hire	3,000
Yes		• FLTG management (5 people)	700
Yes/Attention		• Technical support (3 people)	600
Yes		• Maintenance support	120
Yes	9)	Pump at least 140 gpm; inject at least 100 gpm.	
Yes	10)	Remediate shallow alluvial zone aquifer in 60 months.	
Yes	11)	Hold analytical cost to less than $20,000 per month (1994 only).	
Yes	12)	No unscheduled overtime (per day or per week).	
Yes	13)	No agency contacts which require 3rd party resolution.	
Yes	14)	Documented training of site personnel for all work assignments.	
Yes	15)	Weekly audit of actual performance versus goals.	

TABLE 2-3
Treated Water Results Summary

Collected	Set No.	pH (6-9)		TSS 5 PPM		TOC 55 PPM		O&G 15 PPM		Benzene 150 PPB		Chlor HC's 500 PPB		Total PCBs 0.65 PPB		Napthalene 300 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
13-Jun-94	M03A0244	7.64		7.		40.1		2.5		6.		602.		.16		5.	
16-Jun-94	M03A0245	7.54		6.		20.9		2.5		2.5		440.		.16		5.	
20-Jun-94	M03A0246	7.44		1.		36.7		2.5		6.		287.		.16		5.	
23-Jun-94	M03A0247	7.38		3.		37.9		2.5		6.		301.		.16		5.	
27-Jun-94	M03A0248	7.36		5.		43.6		2.5		6.		401.		.16		5.	
30-Jun-94	M03A0249	7.43		4.		29.		2.5		2.5		108.		.16		5.	
4-Jul-94	M03A0250	7.79		9.		21.4		2.5		6.		201.		.16		5.	
7-Jul-94	M03A0251	7.47		9.		30.1		2.5		2.5		181.		.16		5.	
11-Jul-94	M03A0252	7.44	7.5	1.	5.	26.8	31.83	2.5	2.5	2.5	4.44	236.	306	.16	.16	5.	5.
14-Jul-94	M03A0253	7.28	7.46	1.	4.33	43.3	32.19	2.5	2.5	6.	4.44	223.	264	.16	.16	5.	5.
18-Jul-94	M03A0254	7.24	7.43	3.	4.	31.9	33.41	2.5	2.5	6.	4.83	348.	254	.16	.16	5.	5.
21-Jul-94	M03A0255	7.27	7.41	1.	4.	43.6	34.18	2.5	2.5	6.	4.83	228.	247	.16	.16	5.	5.
25-Jul-94	M03A0256	7.27	7.39	7.	4.44	38.2	34.21	2.5	2.5	2.5	4.44	204.	237	.16	.16	5.	5.
28-Jul-94	M03A0257	7.31	7.39	4.	4.33	32.5	32.98	2.5	2.5	2.5	4.06	206.	215	.16	.16	5.	5.
1-Aug-94	M03A0258	7.36	7.38	8.	4.78	33.9	33.52	2.5	2.5	6.	4.44	313.	238	.16	.16	5.	5.
4-Aug-94	M03A0259	7.3	7.33	2.	4.	33.6	34.88	2.5	2.5	2.5	4.06	203.	238	.16	.16	5.	5.
8-Aug-94	M03A0260	7.25	7.3	3.	3.33	65.6	38.82	2.5	2.5	2.5	4.06	145.	234	.16	.16	5.	5.
11-Aug-94	M03A0261	7.16	7.27	2.	3.44	81.	44.84	2.5	2.5	2.5	4.06	292.	240	.16	.16	5.	5.
15-Aug-94	M03A0262	7.13	7.25	1.	3.44	76.3	48.51	2.5	2.5	6.	4.06	342.	253	.16	.16	5.	5.
18-Aug-94	M03A0263	7.25	7.26	1.	3.22	26.1	47.87	2.5	2.5	2.5	3.67	104.	226	.16	.16	5.	5.
22-Aug-94	M03A0264	7.33	7.26	1.	3.22	15.	44.69	2.5	2.5	2.5	3.28	242.	228	.16	.16	5.	5.
25-Aug-94	M03A0265	7.46	7.28	2.	2.67	34.7	44.3	2.5	2.5	2.5	3.28	102.	217	.16	.16	5.	5.
29-Aug-94	M03A0266	7.37	7.29	10.	3.33	23.5	43.3	2.5	2.5	2.5	3.28	56.	200	.16	.16	5.	5.
1-Sep-94	M03A0267	7.54	7.31	1.	2.56	23.7	42.17	2.5	2.5	2.5	2.89	44.	170	.16	.16	5.	5.
5-Sep-94	M03A0268	7.69	7.35	3.	2.67	37.2	42.57	2.5	2.5	2.5	2.89	152.	164	.16	.16	5.	5.
8-Sep-94	M03A0269	7.58	7.39	2.	2.56	37.8	39.48	2.5	2.5	2.5	2.89	52.	154	.16	.16	5.	5.
12-Sep-94	M03A0270	7.14	7.39	3.	2.67	38.7	34.78	2.5	2.5	2.5	2.89	152.	138	.16	.16	5.	5.
15-Sep-94	M03A0271	7.25	7.4	2.	2.78	38.3	30.56	2.5	2.5	2.5	2.5	680.	176	.16	.16	5.	5.
19-Sep-94	M03A0272	7.59	7.44	46.	7.78	36.2	31.68	2.5	2.5	6.	2.89	521.	222	.16	.16	5.	5.
22-Sep-94	M03A0273	7.55	7.46	5.	8.22	38.2	34.26	2.5	2.5	6.	3.28	524.	254	.16	.16	5.	5.
26-Sep-94	M03A0274	7.19	7.43	4.	8.44	37.3	34.54	2.5	2.5	2.5	3.28	523.	300	.16	.16	5.	5.
29-Sep-94	M03A0275	7.31	7.43	6.	8.	47.8	37.24	2.5	2.5	2.5	3.28	937.	398	.16	.16	5.	5.
3-Oct-94	M03A0276	7.36	7.41	1.	8.	43.	39.39	2.5	2.5	2.5	3.28	593.	459.	.16	.16	5.	5.
6-Oct-94	M03A0277	7.44	7.38	1.	7.78	43.1	40.04	2.5	2.5	6.	3.67	230.	468.	.16	.16	5.	5.
10-Oct-94	M03A0278	7.61	7.38	1.	7.67	18.7	37.92	2.5	2.5	6.	4.06	310.	497.	.16	.16	5.	5.
13-Oct-94	M03A0279	7.28	7.4	1.	7.44	20.7	35.92	2.5	2.5	6.	4.44	380.	522.	.16	.16	5.	5.
17-Oct-94	M03A0280	Sample destroyed in flood.															

Chlorinated hydrocarbons value is sum of detected concentrations of 21 volatile chlorinated hydrocarbons on target compound list.

TABLE 2-3 (Continued)
Treated Water Results Summary

Collected	Set No.	As 150 PPB		Ba 200 PPB		Cd 50 PPB		Cr 500 PPB		Cu 15 PPB		Pb 66 PPB		Mn 300 PPB		Hg 1 PPB		Ni 148 PPB		Se 20 PPB		Ag 5 PPB		Zn 162 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
13-Jun-94	M03A0244	11.		82.		.8		13.		9.		1.		19.		.1		12.		1.		3.8		14.	
16-Jun-94	M03A0245	12.		94.		1.		1.		10.		1.		21.		.1		12.		1.		3.		7.	
20-Jun-94	M03A0246	9.7		116.		1.2		.9		12.		1.		14.		.1		10.		2.		2.8		6.	
23-Jun-94	M03A0247	14.		122.		1.5		.8		11.		1.		21.		.1		7.5		1.		2.5		11.	
27-Jun-94	M03A0248	10.		121.		1.5		9.		12.5		1.		18.		.1		9.6		1.		3.6		16.	
30-Jun-94	M03A0249	13.		108.		1.5		.3		7.		1.		9.		.1		8.		1.		3.		5.	
4-Jul-94	M03A0250	16.		68.5		.2		.3		3.5		.5		9.6		.1		3.1		1.		2.6		12.	
7-Jul-94	M03A0251	14.9		104.		.3		.8		11.		1.		20.		.1		5.		1.		3.		10.	
11-Jul-94	M03A0252	10.	12.3	110.	102.8	.5	.9	.5	3.	5.	9.	1.5	1.	10.	15.7	.1	.1	4.	7.9	1.5	1.2	3.	3.	10.	10.1
14-Jul-94	M03A0253	18.	13.1	105.	105.4	.3	.9	.3	1.5	6.	8.7	.8	1.	7.	14.4	.1	.1	4.5	7.1	.8	1.1	1.5	2.8	17.	10.4
18-Jul-94	M03A0254	10.	12.8	60.	101.6	.5	.8	.5	1.5	4.	8.	1.5	1.	10.	13.2	.1	.1	2.	6.	1.5	1.2	2.	2.7	10.	10.8
21-Jul-94	M03A0255	10.	12.9	100.	99.8	.5	.7	.5	1.4	6.	7.3	1.5	1.1	7.	12.4	.1	.1	7.	5.6	1.5	1.1	1.	2.5	10.	11.2
25-Jul-94	M03A0256	8.	12.2	110.	98.5	.3	.6	.3	1.4	3.	6.4	.8	1.1	6.	10.7	.1	.1	6.	5.5	2.	1.3	.5	2.2	6.	10.7
28-Jul-94	M03A0257	13.	12.5	64.	92.2	.3	.5	.6	.4	15.	6.7	.8	1.	29.	12.	.1	.1	6.	5.1	2.	1.4	.5	1.9	8.	9.8
1-Aug-94	M03A0258	8.	12.	100.	91.3	.3	.3	3.	.7	141.	21.6	4.	1.4	15.	12.6	.1	.1	5.	4.7	.8	1.3	.5	1.6	106.	21.
4-Aug-94	M03A0259	14.	11.8	104.	95.2	.3	.3	.3	.7	5.	21.8	.8	1.4	7.	12.3	.1	.1	11.	5.6	.8	1.3	.5	1.4	10.	20.8
8-Aug-94	M03A0260	11.	11.3	110.	95.9	.3	.3	1.5	.8	6.	21.2	.8	1.4	7.	10.9	.1	.1	15.	6.7	2.	1.4	.5	1.1	14.	21.2
11-Aug-94	M03A0261	14.	11.8	105.	95.3	.3	.3	1.	.9	3.	21.	.8	1.3	5.	10.3	.1	.1	10.	7.4	5.	1.8	.5	.8	12.	21.4
15-Aug-94	M03A0262	14.	11.3	94.	94.1	.3	.3	.3	.9	2.	20.6	.8	1.3	4.	10.	.1	.1	7.	7.7	.8	1.8	.5	.7	9.	20.6
18-Aug-94	M03A0263	14.	11.8	89.	97.3	.3	.3	1.	.9	5.	20.7	.8	1.2	3.	9.2	.1	.1	14.	9.	.8	1.7	.5	.6	12.	20.8
22-Aug-94	M03A0264	9.	11.7	70.	94.	.3	.3	.3	.9	10.5	21.2	.8	1.1	3.	8.8	.1	.1	2.	8.4	.8	1.6	.5	.5	5.	20.2
25-Aug-94	M03A0265	10.	11.9	88.	91.6	.3	.3	.3	.9	1.	20.9	.8	1.1	2.	8.3	.1	.1	3.	8.1	.8	1.5	.5	.5	3.	19.9
29-Aug-94	M03A0266	20.	12.7	80.	93.3	.3	.3	3.	1.2	5.	19.8	.8	1.1	.5	5.2	.1	.1	10.	8.6	1.5	1.4	.5	.5	12.	20.3
1-Sep-94	M03A0267	14.	13.3	70.	90.	.3	.3	1.	.9	2.	4.4	.8	.8	3.	3.8	.1	.1	7.	8.8	.8	1.4	.5	.5	5.	9.1
5-Sep-94	M03A0268	17.	13.7	62.	85.3	1.3	.4	2.5	1.2	1.3	4.	1.3	.8	5.	3.6	.1	.1	10.	8.7	1.3	1.5	2.5	.7	8.	8.9
8-Sep-94	M03A0269	10.	13.6	50.	78.7	1.3	.5	2.5	1.3	1.3	3.4	1.3	.9	4.	3.3	.1	.1	5.	7.6	1.3	1.4	2.5	.9	3.8	7.8
12-Sep-94	M03A0270	12.	13.3	45.	72.	1.3	.6	2.5	1.5	4.	3.6	1.3	.9	3.	3.1	.1	.1	2.5	6.7	1.3	1.	2.5	1.2	10.	7.5
15-Sep-94	M03A0271	13.	13.2	50.	67.1	1.3	.7	2.5	1.7	3.	3.7	1.3	1.	1.3	2.8	.1	.1	7.	6.7	1.3	1.1	2.5	1.4	24.	9.2
19-Sep-94	M03A0272	10.	12.8	54.	63.2	1.3	.8	2.5	1.9	4.	3.6	1.3	1.	11.	3.6	.1	.1	5.	5.7	1.3	1.1	2.5	1.6	10.	9.
22-Sep-94	M03A0273	12.	13.1	64.	62.6	1.3	.9	2.5	2.1	4.	2.8	1.3	1.1	22.	5.8	.1	.1	5.	6.1	1.3	1.2	2.5	1.8	11.	9.6
26-Sep-94	M03A0274	14.	13.6	61.	59.6	1.3	1.	2.5	2.4	1.3	2.9	1.3	1.1	4.	6.	.1	.1	5.	6.3	1.3	1.2	1.3	1.9	3.8	9.7
29-Sep-94	M03A0275	15.	13.	78.	59.3	1.3	1.1	2.5	2.3	1.3	2.5	1.3	1.2	5.	6.5	.1	.1	5.	5.7	1.3	1.2	2.5	2.1	10.	9.5
3-Oct-94	M03A0276	13.	12.9	60.	58.2	1.3	1.3	2.5	2.5	3.	2.6	1.3	1.3	11.	7.4	.1	.1	20.	7.2	1.3	1.3	2.5	2.4	9.	9.9
6-Oct-94	M03A0277	14.	12.6	73.	59.4	1.3	1.3	2.5	2.5	3.	2.8	1.3	1.3	9.	7.8	.1	.1	2.5	6.3	1.3	1.3	2.5	2.4	3.8	9.5
10-Oct-94	M03A0278	11.	12.7	58.	60.3	1.3	1.3	2.5	2.5	3.	3.	1.3	1.3	1.3	7.5	.1	.1	1.3	5.9	1.3	1.3	2.5	2.4	10.	10.2
13-Oct-94	M03A0279	10.	12.4	70.	63.1	1.3	1.3	2.5	2.5	2.5	2.8	1.3	1.3	3.	7.5	.1	.1	2.5	5.9	1.3	1.3	2.5	2.4	3.8	9.5
17-Oct-94	M03A0280	Sample destroyed in flood.																							

Metals values in PPB.

2.2 Problem Areas and Recommended Solutions

Problem	Solution
Maintain high level of safety awareness.	Continue daily lottery ticket program. Daily safety meetings. Supervisory safety contacts.
On-the-Job safety attention.	Contact all employees at least twice per day on safety issues. Review job details as work proceeds.
Hazard detection and response.	Safety inspections. HAZOP's on all jobs.
Response action plan for DNAPL and DNAPL affected areas.	Issue FS report.
Low flow in some pumping and injection wells.	Test vacuum enhanced pumping. Increase injection pressure in some areas. Pressure fracture INT zone in selected areas.
Rebound of chemicals in S1 zone on west end.	Continued pulse pumping test in this zone.
Increase INT zone remediation rate.	Increase pumping and injection rates.
Site rehabilitation after the flood.	Define work requirements; hire qualified personnel; replace/repair equipment; repair/repaint office building.

2.3 Problems Resolved

Problem	Solution
Erratic DNAPL flow.	No significant DNAPL flow at any wells.
Cell F water treatment.	Completed treatment of Cell F water.
Aquifer compliance criteria.	Federal drinking water standards at the property line outside the containment boundary.
Six lots in the wetlands project area.	Acquired the six lots in the project area.
Wetlands archeology issues.	State issued full archeological clearance for the project.

2.4 Deliverables Submitted

September, 1994 Monthly Report.

2.5 Upcoming/Ongoing Events and Activities

Daily safety meetings and inspections.

Lottery ticket safety awareness program.

Emphasis on changing weather conditions.

Emphasis on muscle strains and proper lifting/handling.

Emphasis on slips, trips, and falls.

Respond to HAZOP audits.

Site rehabilitation after the flood.

Increase INT injection pressure and flow.

Daily well pump checks and maintenance.

Evaluate pulse pumping in INT zone.

Pulse pumping in S1 zone.

Operate S1 and INT wells for expedited in-situ bioremediation.

Sample potable wells in Riverdale.

Sell and ship surplus equipment.

Complete backfill and stabilization of Cell F.

Land application of Cell D water in Cell E backfill.

Evaluate vegetation in Cell E area; plant several alternative types.

Operate Data Base Management System.

Total Quality process.

Continue biological activity monitoring in S1 wells and INT wells.

Issue permeability results of INT-11 area containment wall tests.

Develop aquifer compliance sampling plan.

Continue QA/QC data confirmation.

Optimize carbon usage in Water Treatment Plant.

Develop lagoon closure plan.

Submit MCC-1 area remediation report.

Modify Cell D/F confirmation report to include a Cell E summary.

Continue wetlands restoration project.

2.6 Key Staffing Changes

None.

2.7 Percent Complete

Research & Development	- 98%
Facilities	- 100%
Slough	- 100%
Subsoil Investigation	-100%
Floodwall	-100%
Lagoon Remediation	-100%
Groundwater	- 69%
Lagoon Dewatering/Fixation	- 96%
Water Treatment	- 65%
Wetlands	- 35%
Demobilization	- 61%
Monitoring	- 52%

2.8 Schedule

All deliverables are on schedule.

Complete active aquifer remediation by January 1, 1996.

2.9 Operations and Monitoring Data

The operations and monitoring data are submitted as parts of Sections 3.0, 4.0, 5.0, and 6.0 of this report, and the supporting data are stored in secure storage at the French project office.

2.10 Credits Accrued/Applied

Status of Credits

	Accrued this period	Accrued to date	Applied this period	Applied to date	Running total
December 1990	34	34	0	0	34
December 1991	0	100	0	0	100
December 1992	0	101	0	2	99
January 1993	0	101	0	2	99
February 1993	0	101	0	2	99
March 1993	0	101	0	2	99
April 1993	0	101	0	2	99
May 1993	0	101	0	2	99
June 1993	0	101	0	2	99
July 1993	0	101	2	4	97
August 1993	2	103	0	4	99
September 1993	0	103	0	4	99
October 1993	0	103	0	4	99
November 1993	1	104	0	4	100
December 1993	0	104	0	4	100
January 1994	0	104	0	4	100
February 1994	0	104	0	4	100
March 1994	0	104	0	4	100
April 1994	0	104	0	4	100
May 1994	0	104	0	4	100
June 1994	0	104	0	4	100
July 1994	5	109	0	4	105
August 1994	0	109	0	4	105
September 1994	0	109	0	4	105
October 1994	0	109	0	4	105

2.11 Community Relations

Maintained 24-hour, call-in Hot Line.

Conducted four site tours for interested parties.

Reviewed site status with TAG consultant.

Contacted nearby local residents with update on site operation.

Contacted several Riverdale residents with water quality data.

Contacted specific Riverdale residents to review deep well installation.

Contacted local residents with status report on flood preparation and response.

3.0 LAGOON BIOREMEDIATION

3.1 Summary of Activities

Evaluated test plots of various plants in Cell E.

Completed dewatering and backfill of Cell F; pumped and treated 1.7 million gallons and placed 6,320 yards of backfill.

Maintained DO, OUR, and HMB in Cell F to reduce the biomass.

Land applied about 400,000 gallons of "clean" Cell D water to Cell E.

Operated aerator in Cell D to expedite biomass degradation.

3.2 Problems and Response Action

Problem	Recommended Solution
Ground cover growth slow in Cell E.	Hydroseed a third time with Bermuda. Water frequently.
Final elevation of lagoon area.	Grade to tie into north and east sloughs.
Final Cell F water treatment.	Pump to Cell D and land apply in Cell E backfill.

3.3 Problems Resolved

None.

3.4 Deliverables Submitted

None.

3.5 Upcoming Events and Activities

Maintain pH, DO, OUR, and nutrient levels in Cell D.

Operate aerator/mixer in Cell D.

Complete lime stabilization of residue in Cell F.

Land apply Cell D water in the Cell E backfill.

Continue to dewater Cell D.

Re-hydroseed Cell E if required.

Maintain vegetation in Cell E.

Plant cottonwood trees in Cell E as a test.

4.0 GROUNDWATER AND SUBSOIL REMEDIATION

4.1 Summary of Activities

4.1.1 Operation of Production and Injection Well Systems

Operation of the production and injection wells systems during October 1994 is summarized in Table 4-1. Although the reporting period covers 36 days, the aquifer remediation system was only operational for 22 days due to severe flooding starting on October 17. Flows from the production well system are summarized in Table 4-2 and Figure 4-1. Flows into the injection well system are summarized in Table 4-3 and Figure 4-2. Individual well flows are summarized in Table 4-4. There were no well additions or changes in October.

4.1.2 Operational Monitoring

Operational monitoring associated with the groundwater and subsoil remediation system during October 1994 is summarized in Table 4-5.

4.1.3 Data Management and Evaluation

Operational monitoring data from the groundwater and subsoil remediation system for this reporting period were entered into FLTG's database. Tables and figures for this section of the Monthly Progress Report were generated from this database.

4.2 Problems and Response Actions

The groundwater production and injection rates were both above target; four S1 production wells (S1-19, -24, -31, and -41) were added to the bi-weekly pulse pumping system (see Section 4.3.2 and Table 4-4). These wells contained zero to 8 ppb benzene (the only VOC detected) in September sampling (see Section 4.5.5.) Due to backfilling and runoff control in the former lagoon area, groundwater levels there are declining steadily, causing reduced production well flows.

Nutrient and dissolved oxygen concentrations in injection water were either above or close to target levels. No specific response action is planned.

Table 4-1

Groundwater System Operation - October 1994 *Reporting Period: September 26 - October 31 (36 days)* *Operational Period: September 26 - October 17 (22 days)*
Production System
No. of production wells: 109 (S1 unit, 53; INT unit, 56) No. of operational wells: 98 (S1 unit, 42; INT unit, 56)
Changes in system since last month: started pulse pumping at S1-19, 24, 31, and 41 on 10/10.
No. of wells off line having reached criteria: 9 (see Tables 4-4 and 4-7) Other wells off line: S1-5, low water levels; S1-16, DNAPL pump down No. of wells on pulse pumping schedule: 10 (see Table 4-4) No. of wells pumping DNAPL: 0
Groundwater produced: 5.9 M gal; 217.7 M gal since startup based on main meter Total production rate: avg. 186 gpm (target 140 gpm); range 154 - 220 gpm S1 production rate: avg. 123 gpm; avg. 2.9 gpm per metered well INT production rate: avg. 63 gpm; avg. 1.1 gpm per metered well Total flow rate apportioned between S1 and INT units based on individual well meter readings; average flows based on 22 days operation
TOC (non-volatile) concentration avg. 101 ppm; range 39 - 222 ppm TOC mass removed: 2,164 lb. (351,985 lb. since startup); 98 lb./day
Injection System
No. of injection wells: 59 (S1 unit, 17; INT unit, 42)
Rainfall during period: heavy rainfall and severe flooding; detailed records lost in flood.
Changes in system since last month: additional injection water supply well completed 9/27, screened in Chicot aquifer from 192 to 222 feet.
Groundwater injected: 5.1 M gal (113.2 M gal since startup) based on main meters
S1 unit injected: 2.0 M gal (61.0 M gal since startup) INT unit injected: 3.1 M gal (52.2 M gal since startup) Total injection rate: avg. 161 gpm (target 100 gpm); range 146 - 176 gpm S1 injection rate: avg. 63 gpm; avg. 3.7 gpm per well INT injection rate: avg. 98 gpm; avg. 2.3 gpm per well Total flow rate apportioned between S1 and INT units based on individual well meter readings; average flows based on 22 days operation
Oxygen added to injection water: 7,775 lb.; 353 lb./day used (input efficiency = 25%) Avg. DO in injection water: S1, 37.8 ppm; INT, 51.9 ppm (target 40 ppm) ⇒ 89.7 lb./day
Volume of 4.7% w/w KNO_3 nutrient solution added to INT unit, S1-58, and S1-59: 9,880 gal Nutrient flow rate: 449 gpd, 0.24% of INT + S1-North inflow rate (target 0.38%) Calculated injection water NO_3 concentration: 31.0 mg/L-N (target 50 mg/L-N)

Note that average monthly flow rates at individual wells (calculated from weekly individual well flow meter readings) are not used directly to determine S1 and INT unit inflows and outflows, but are used to apportion total production and injection flows (calculated from daily main production and injection meter readings) between S1 and INT units. Also, average flows are based on the 22 days that the system was operational.

Table 4-2

Daily Groundwater Production and TOC Removal
October 1994

Date	Project Day	T-101 Outflow Rate (FQ-101A) (gpd)	T-101 Outflow Rate (gpm)	T-101 Influent Ave. TOC (mg/L)	T-101 Influent TOC Loading (kg/day)
26-Sep	992	234,800	163	*106*	94
27-Sep	993	258,400	179	*106*	104
28-Sep	994	255,200	177	*106*	102
29-Sep	995	257,300	179	*106*	103
30-Sep	996	252,800	176	*106*	101
1-Oct	997	248,200	172	230	216
2-Oct	998	232,600	162	222	195
3-Oct	999	227,500	158	208	179
4-Oct	1000	221,300	154	159	133
5-Oct	1001	262,800	183	75	75
6-Oct	1002	291,000	202	56	62
7-Oct	1003	268,100	186	54	55
8-Oct	1004	316,900	220	85	102
9-Oct	1005	290,900	202	106	117
10-Oct	1006	285,100	198	87	94
11-Oct	1007	312,100	217	45	53
12-Oct	1008	310,700	216	39	46
13-Oct	1009	275,200	191	80	83
14-Oct	1010	*275,200*	191	38	40
15-Oct	1011	*275,200*	191	*67*	70
16-Oct	1012	*275,200*	191	*67*	70
17-Oct	1013	*275,200*	191	*67*	70
18-Oct	1014	System closed down on 10/17/94			
19-Oct	1015				
20-Oct	1016				
21-Oct	1017				
22-Oct	1018				
23-Oct	1019				
24-Oct	1020				
25-Oct	1021				
26-Oct	1022				
27-Oct	1023				
28-Oct	1024				
29-Oct	1025				
30-Oct	1026				
31-Oct	1027				
22-Day Average		268,259	186	101	98
Month Average		163,936	114	62	60
Month Total		5,901,700			2,164

Figures in italics estimated from previous readings; field data for these entries lost in flood

Table 4-3

Daily Injection Flows
October 1994

Date	Project Day	INT South INT-90/100 S1 North Injection Wells FQ905		INT North (not INT-90/100) Injection Wells Meter FQ-906		S1 South Injection Wells Meter FQ-909		Total Injection Rate	
		(gpd)	(gpm)	(gpd)	(gpm)	(gpd)	(gpm)	(gpd)	(gpm)
26-Sep	992	91,100	63	37,400	26	87,200	61	215,700	150
27-Sep	993	90,000	63	37,400	26	88,000	61	215,400	150
28-Sep	994	90,000	63	38,400	27	98,400	68	226,800	158
29-Sep	995	92,100	64	40,500	28	115,200	80	247,800	172
30-Sep	996	92,500	64	40,600	28	112,100	78	245,200	170
1-Oct	997	96,700	67	42,900	30	114,400	79	254,000	176
2-Oct	998	93,000	65	41,500	29	113,700	79	248,200	172
3-Oct	999	88,400	61	39,900	28	111,100	77	239,400	166
4-Oct	1000	90,100	63	40,000	28	110,500	77	240,600	167
5-Oct	1001	87,400	61	39,600	28	108,600	75	235,600	164
6-Oct	1002	85,200	59	39,700	28	108,600	75	233,500	162
7-Oct	1003	83,900	58	39,900	28	108,000	75	231,800	161
8-Oct	1004	80,800	56	39,500	27	107,000	74	227,300	158
9-Oct	1005	82,600	57	40,100	28	108,100	75	230,800	160
10-Oct	1006	83,100	58	40,100	28	108,100	75	231,300	161
11-Oct	1007	83,800	58	39,700	28	109,200	76	232,700	162
12-Oct	1008	84,600	59	38,700	27	107,900	75	231,200	161
13-Oct	1009	84,700	59	38,000	26	106,600	74	229,300	159
14-Oct	1010	84,600	59	38,100	26	106,200	74	228,900	159
15-Oct	1011	85,400	59	38,500	27	107,200	74	231,100	160
16-Oct	1012	83,200	58	37,500	26	103,000	72	223,700	155
17-Oct	1013	78,003	54	35,154	24	96,565	67	209,722	146
18-Oct	1014	System closed down on 10/17/94							
19-Oct	1015								
20-Oct	1016								
21-Oct	1017								
22-Oct	1018								
23-Oct	1019								
24-Oct	1020								
25-Oct	1021								
26-Oct	1022								
27-Oct	1023								
28-Oct	1024								
29-Oct	1025								
30-Oct	1026								
31-Oct	1027								
22-Day Average		86,873	60	39,234	27	106,167	74	232,274	161
Month Average		53,089	37	23,977	17	64,880	45	141,945	99
Month Total		1,911,203		863,154		2,335,665		5,110,022	

Table 4-4

Average Production and Injection Flow Rates - October 1994

All flow rates are estimated averages for the period September 26 - October 17 (22 days)

S1 Production Wells (53)

Well ID	gpm
S1-1	1.0
S1-2	0.4
S1-3	0.5
S1-4	0.1
S1-5	OFF
S1-6	1.4
S1-7	0.4
S1-8	0.3
S1-9	0.8
S1-10	0.8
S1-11	1.8
S1-12	0.8
S1-13	NM
S1-14	0.3
S1-15	0.7
S1-16	OFF
S1-17	0.6
S1-18	1.0
S1-19	3.1 PP
S1-20	1.8
S1-21	8.0
S1-22	0.9
S1-23	OFF
S1-24	4.5 PP
S1-25	1.7
S1-26	5.3
S1-27	0.6
S1-28	4.1
S1-29	2.1
S1-30	2.0
S1-31	2.5 PP
S1-32	2.7
S1-33	OFF
S1-34	OFF
S1-35	OFF
S1-36	OFF
S1-37	OFF
S1-38	OFF
S1-39	9.3
S1-40	7.7
S1-41	5.5 PP
S1-42	OFF
S1-43	OFF
S1-44	14.7 PP
S1-45	2.5 PP
S1-46	10.2 PP
S1-47	0.9 PP
S1-48	1.0 PP
S1-60	24.3 PP
S1-61	0.2
S1-62	0.8
S1-63	1.3
S1-64	1.0
Total	**129.6**
Average*	**3.2**

* of metered wells

S1 Injection Wells (17)

Well ID	gpm
S1-49	1.7
S1-50	3.8
S1-51	0.7
S1-52	1.1
S1-53	2.4
S1-54	0.6
S1-55	4.1
S1-56	4.9
S1-57	4.4
S1-58	1.9
S1-59	OFF
S1-65	4.6
S1-66	4.1
S1-67	4.8
S1-68	2.7
S1-69	6.6
S1-70	2.9
Total	**51.1**
Average	**3.2**

Wells S1-58, 59, 65, 66, 67, 68, 69, and 70 receive *oxygen- and nutrient-*amended injection water

Subtotal	27.6

All other S1 wells receive oxygenated injection water only

Notes
OFF - well inoperative
NM - well running but not metered
PP - well in pulse pumping mode

INT Production Wells (56)

Well ID	gpm
INT-1	1.7
INT-2	0.0
INT-3	0.2
INT-4	0.1
INT-5	0.8
INT-6	0.1
INT-7	0.2
INT-8	1.0
INT-9	0.8
INT-10	0.6
INT-11	0.4
INT-12	0.5
INT-13	0.1
INT-14	3.1
INT-15	0.8
INT-16	0.2
INT-17	0.1
INT-18	0.5
INT-19	0.3
INT-20	0.3
INT-21	0.2
INT-22	0.5
INT-23	0.1
INT-24	0.4
INT-25	0.4
INT-26	0.4
INT-27	1.8
INT-28	0.4
INT-29	2.5
INT-30	1.4
INT-31	0.3
INT-32	0.7
INT-33	0.3
INT-55	2.0
INT-56	0.3
INT-57	1.0
INT-58	2.7
INT-59	0.2
INT-60	1.9
INT-61	1.0
INT-62	0.1
INT-65	1.2
INT-66	0.6
INT-205	1.5
INT-206	1.3
INT-207	1.3
INT-208	3.1
INT-209	0.4
INT-210	3.9
INT-211	2.5
INT-212	2.9
INT-213	1.8
INT-214	3.2
INT-215	6.5
INT-216	0.8
INT-217	4.9
Total	**66.1**
Average	**1.2**

INT Injection Wells (42)

Well ID	gpm
INT-63	2.0
INT-64	6.5
INT-71	2.7
INT-72	0.2
INT-73	0.5
INT-74	1.4
INT-75	1.0
INT-76	4.0
INT-77	4.0
INT-78	3.8
INT-79	0.7
INT-80	1.3
INT-81	4.2
INT-82	0.9
INT-83	1.8
INT-84	5.2
INT-85	1.2
INT-86	1.1
INT-87	0.7
INT-88	1.1
INT-89	0.7
INT-90	4.5
INT-91	1.3
INT-92	2.3
INT-93	1.7
INT-94	1.0
INT-95	1.0
INT-96	0.8
INT-97	1.4
INT-98	0.9
INT-99	4.5
INT-100	0.1
INT-201	1.7
INT-202	1.1
INT-203	1.4
INT-204	1.3
INT-218	1.6
INT-219	1.5
INT-220	1.4
INT-221	0.9
INT-222	3.5
INT-223	1.2
Total	**80.1**
Average	**1.9**

All INT injection wells receive oxygen- and nutrient-amended injection water

Note: total and average flow rates for S1 and INT units are corrected (per main flow meter readings) for use in Table 4-1.

Table 4-5

Operational Monitoring - October 1994

Activity	Frequency	Purpose
Check production and injection wells for pump, meter, and level control operation, injection pressure, gas buildup, and flow meter readings.	Daily	Identify and respond to individual well problems; maintain operating efficiency.
Read groundwater treatment plant inflow and outflow meters; nutrient injection flow meters; oxygen flows, pressure and temperature; and injection header back pressure.	Daily (shift changes)	Identify and respond to treatment plant problems; control nutrient and injection flow rates.
Measure T-101 influent and effluent TOC concentrations.	Daily (shift changes)	Track removal of TOC.
Measure rainfall.	Daily	Assists interpretation of water level maps.
Measure dissolved oxygen at 11 representative S1 and INT injection wells	Weekly	Main control for oxygen injection rate.
Sample T-101 influent for VOC, TOC, and nutrient analysis, (1) from all operating production wells, and (2) from all wells located outside the floodwall.	Monthly	Develop chemical mass balance.
Sample Rochem effluent for VOC analysis.	Monthly	Confirm that treated water is suitable for blending with injection water.
Monitor groundwater levels at all monitoring wells.	Monthly	Verify capture zones.
Monitor DO at all monitoring wells; wells thoroughly purged before monitoring.	Monthly	Monitor breakthrough of aerobic conditions.
Sample groundwater at all production wells for on-site TOC and DO analysis.	Monthly	Track TOC removal and monitor breakthrough of aerobic conditions.

Figure 4-1

Groundwater Production Rate

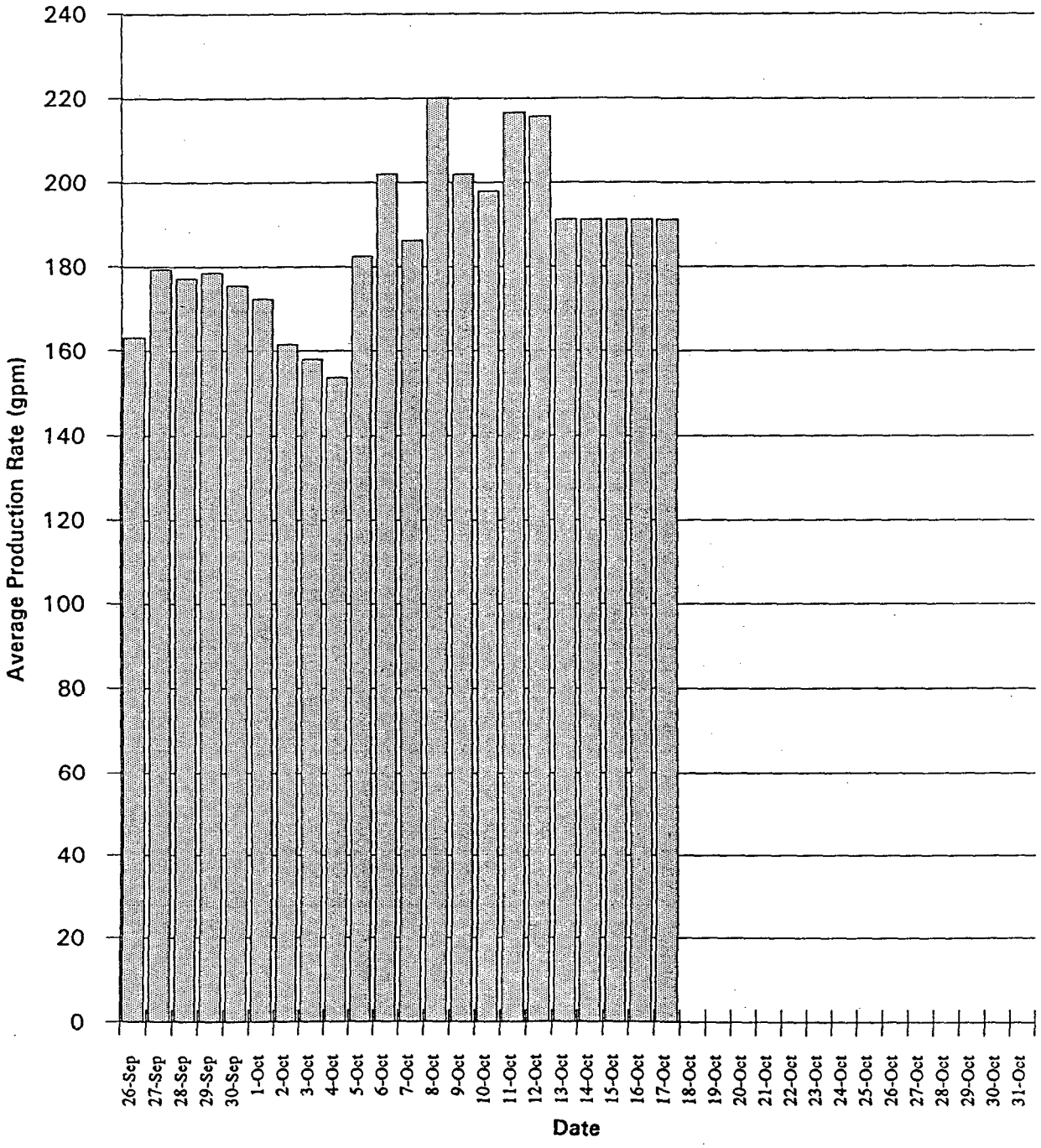
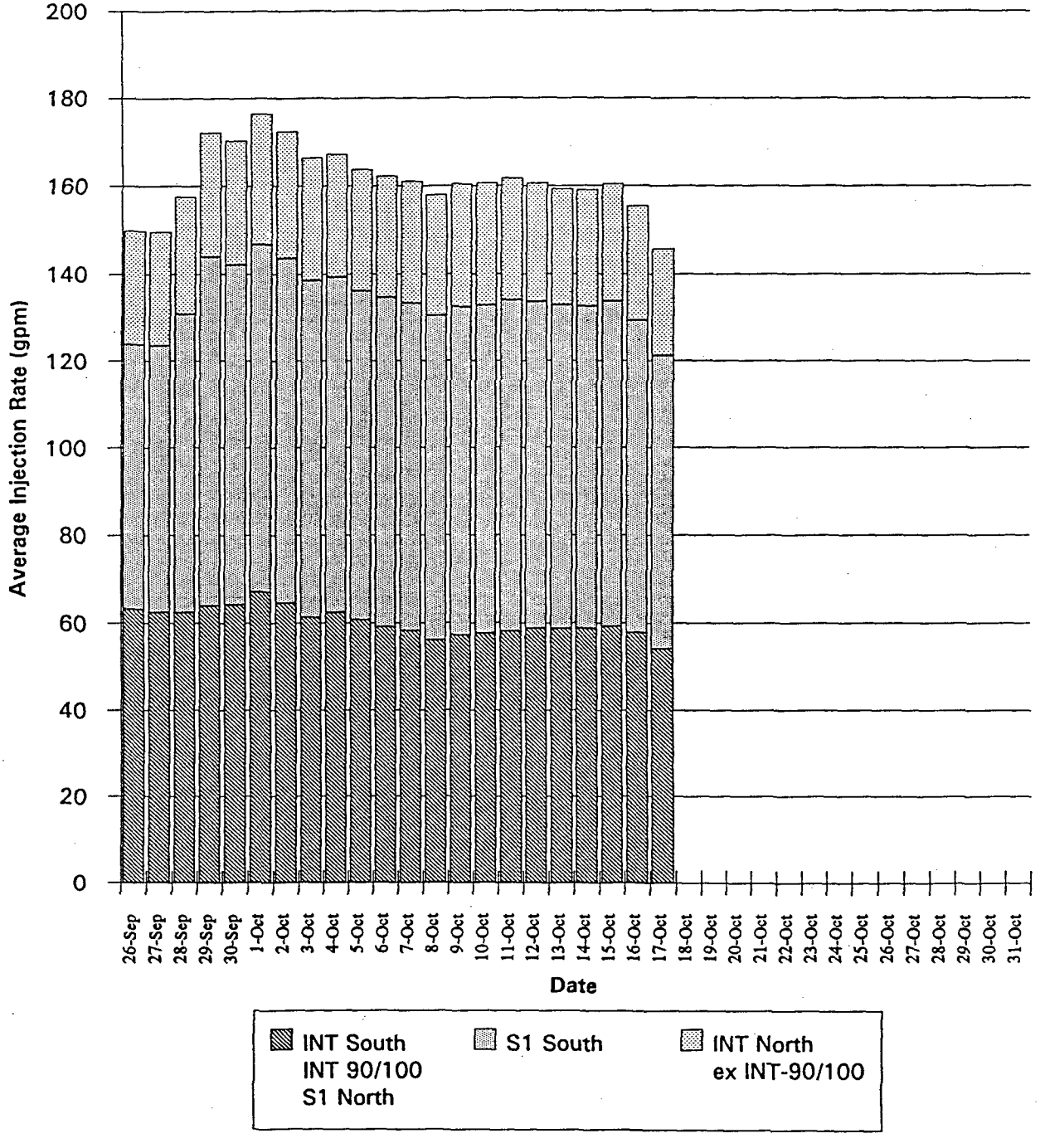


Figure 4-2

Groundwater Injection Rate



4.3 Pending Issues

4.3.1 DNAPL Response

During October, work continued on evaluating the permeability certification testing results.

4.3.2 S1 Unit Pulse Pumping

Sampling at S1 production wells S1-19, -24, -31, -40, -41, and -44 through -60, was combined with the September quarterly groundwater monitoring. Initial results indicated that the following wells were at or near to cleanup criteria: S1-19 (8 µg/L benzene); S1-24 (3 µg/L benzene); S1-31 (benzene not detected) and S1-41 (6 µg/L benzene). These four wells were added to the pulse pumping program on October 10. Pulse pumping is now performed routinely at wells S1-19, -24, -31, -40, -41, and -44 through -60.

4.3.3 Phreatophyte Progress

There have been no changes since last month. The area inside the floodwall (where the phreatophytes are located) was not flooded, and no adverse effects due to the high rainfall are expected.

4.4 Operational Refinements

Due to loss of field data from the site, no additional review of vacuum-enhanced pumping (VEP) operations can be performed for October.

4.5 Data Summary and Discussion

4.5.1 Groundwater Production and Injection

Groundwater production and injection rates continued above target before operations were interrupted by flooding.

4.5.2 Groundwater Levels and Flow Directions

Water level readings for the S1 and INT units were measured on September 30 through October 7 and therefore predated flood conditions. Regional groundwater elevation contours for the S1 and INT units in the groundwater remediation area are

presented in Figures 4-3 and 4-4. The current extent of contaminated groundwater is contained within the S1 and INT extraction system capture zones. It is expected that flood waters will have created a marked rise in water levels, as was observed after less severe flooding in July 1993. A program of purging monitoring wells, to remove river water that may have entered during the flood period, was started as soon as flood waters receded from the site. This will allow representative shallow aquifer samples to be collected during the December 1994 annual groundwater monitoring event.

4.5.3 TOC in shallow groundwater

Samples were collected from 105 out of 109 production wells on October 1 and 2 for on-site TOC analysis. Summaries of TOC concentrations at production wells from the start of remediation to date for each unit are presented in Tables 4-6 and 4-7. TOC contour maps are presented in Figures 4-5 and 4-6. The history of daily flows, TOC concentration, and TOC input to T-101 is presented in Table 4-2. On-site TOC analyses (used to generate Tables 4-2, 4-6, and 4-7) measure non-purgeable organic carbon.

Because an apparent increase in TOC to 567 ppm was seen at well S1-33 in September's monthly TOC monitoring, this well was resampled on October 7. It showed a TOC of 12.4 ppm, which is in line with the previous set of TOC readings, and indicated that the September TOC value was anomalous.

4.5.4 In-Situ Bioremediation

No major changes in in-situ bioremediation system operation occurred in October. The emphasis continues to be to maximize delivery of oxygen and nutrients to the INT system. Dissolved oxygen (DO) monitoring was performed at monitoring and production wells on September 30 through October 7. All monitoring wells were thoroughly purged of at least three casing volumes before monitoring. This resulted in more representative DO readings being obtained compared with the normal method of measuring DO in situ with the probe suspended at the center of the monitoring well screen.

Using the well purging protocol, in October, the DO breakthrough area in the eastern part of the S1 plume was identified as extending over a wider area, to S1-19, -20, -23, -60, and -105 (see Figures 4-7 and 4-8). Otherwise, the DO breakthrough area in the S1 unit has not changed since September DO monitoring. In the INT unit, additional breakthrough wells since September DO monitoring included INT-12, -13, -31, -102, -104, -109, and -209.

Table 4-6

HISTORY OF TOC CONCENTRATIONS
AT S1 PRODUCTION WELLS

Well ID	Baseline Nov-Dec 91 (ppm)	Maximum Feb-Dec 92 (ppm)	Maximum 1993 (ppm)	Average 1993 (ppm)	Minimum 1993 (ppm)	Jan 1994 (ppm)	Feb 1994 (ppm)	Mar 1994 (ppm)	Apr 1994 (ppm)	May 1994 (ppm)	June 1994 (ppm)	July 1994 (ppm)	Aug 1994 (ppm)	Sep 1994 (ppm)	Oct 1994 (ppm)
S1-1	290	475	910	634	390	1,025	1,150	1,317	941	971	1,360	970	850	1,133	1,080
S1-2	190	796	1,204	832	460	1,037	909	1,510	982	1,120	1,139	1,100	1,130	1,251	1,048
S1-3	370	1,071	1,610	862	384	1,090	1,120	1,037	793	783	755	760	670	566	692
S1-4	47	866	1,044	786	560	848	1,300	1,025	676	669	668	420	552	620	552
S1-5	51	646	950	714	548	1,079	624	1,151	655	583	473	NS	NS	NS	NS
S1-6	51	800	1,084	816	482	1,202	1,340	1,315	832	878	892	920	860	928	860
S1-7	200	787	1,084	879	710	NS	1,290	1,327	857	843	786	780	800	660	752
S1-8	64	927	1,072	769	465	1,118	1,290	1,516	921	931	1,110	880	800	935	800
S1-9	77	506	1,530	830	225	1,809	2,020	2,085	1,500	337	1,589	1,420	1,750	567	1,480
S1-10	46	214	2,105	1,381	147	2,251	2,610	2,540	1,716	1,980	1,800	1,810	1,770	567	1,640
S1-11	120	281	1,848	1,193	270	2,004	2,210	NS	1,500	1,609	1,751	1,810	1,639	2,510	1,548
S1-12	140	1,002	2,260	1,200	585	2,313	2,390	2,129	1,780	2,056	1,445	2,410	2,210	2,355	NS
S1-13	520	894	760	598	404	771	930	990	698	836	722	850	790	1,077	1,032
S1-14	590	1,730	2,304	1,214	626	1,502	1,077	1,616	1,350	1,293	1,443	1,400	1,550	1,440	1,415
S1-15	5,300	4,910	3,696	2,374	336	3,373	2,756	2,778	3,030	2,484	2,280	3,490	2,080	2,583	2,600
S1-16	8,900	8,900	3,122	1,651	180	NS	2,056	2,732	2,256	NS	718	NS	NS	NS	NS
S1-17	6,800	5,550	1,106	750	405	627	388	344	314	266	180	230	102	141	90
S1-18	2,200	2,043	196	112	52	90	101	44	86	39	34	36	34	49	36
S1-19	20	914	220	110	53	26	37	33	60	25	28	28	25	39	18
S1-20	120	1,360	192	126	60	25	95	141	57	68	50	47	68	60	30
S1-21	65	418	1,020	134	23	113	48	17	29	18	8	19	19	42	8
S1-22	290	1,080	1,010	123	8	12	6	4	28	14	19	16	44	64	25
S1-23	350	234	1,315	137	7	24	14	27	29	13	21	NS	NS	29	10
S1-24	250	240	200	52	16	25	16	16	39	16	18	19	19	42	13
S1-25	550	660	91	35	11	26	16	16	28	14	15	15	15	33	13
S1-26	540	575	84	34	14	25	25	22	39	15	18	17	17	49	11
S1-27	220	219	400	119	52	51	62	60	52	45	42	41	35	88	NS
S1-28	370	520	380	64	11	275	29	12	23	14	15	17	15	21	41
S1-29	670	496	182	47	16	50	62	23	28	19	20	23	21	33	20
S1-30	370	711	604	113	27	51	50	78	38	28	31	32	26	86	42
S1-31	14	712	70	34	15	0	57	29	60	15	17	20	17	29	16
S1-32	18	347	910	185	30	100	132	85	82	48	49	46	45	73	42
S1-33	10	30	55	30	12	101	99	16	25	NS	NS	NS	15	567	12
S1-34	11	50	94	50	24	79	90	75	24	NS	13	17	16	18	17
S1-35	24	154	95	68	22	25	43	45	64	44	43	19	86	37	46
S1-36	200	162	106	56	10	60	49	44	45	NS	27	30	43	39	NS
S1-37	13	71	180	44	12	50	52	55	57	NS	9	23	35	36	34
S1-38	59	73	52	21	1	NS	1,540	6	17	NS	NS	NS	24	22	NS
S1-39	290	414	96	35	17	15	25	22	21	14	11	14	17	17	10
S1-40	150	210	268	70	25	38	25	33	25	18	15	16	14	17	13
S1-41	170	116	84	31	14	1	48	12	17	12	11	11	12	16	NS
S1-42	88	103	35	17	5	0	11	37	13	NS	NS	NS	21	22	NS
S1-43	4	36	50	24	6	1	21	NS	19	NS	NS	5	5	14	NS
S1-44	280	204	45	25	9	25	19	44	33	23	21	23	21	28	53
S1-45	4,400	588	174	51	14	37	20	30	33	26	NS	17	28	24	16
S1-46	480	462	76	18	4	1	11	10	21	15	NS	34	21	24	6
S1-47	1,200	1,390	155	79	25	150	72	61	60	42	NS	25	46	31	20
S1-48	1,200	1,505	133	52	15	50	34	31	31	21	NS	35	37	22	22
S1-60	48	91	126	28	8	25	11	15	16	10	NS	10	26	17	11
S1-61	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	758	744	1,028	366	201
S1-62	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	125	42	26	27	20
S1-63	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	264	256	193	241	149
S1-64	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	512	102	63	66	53

NS = Not Sampled

Table 4-7

HISTORY OF TOC CONCENTRATIONS
AT INT PRODUCTION WELLS

Well ID	Baseline Nov-Dec 91 (ppm)	Maximum Feb-Dec 92 (ppm)	Maximum 1993 (ppm)	Average 1993 (ppm)	Minimum 1993 (ppm)	Jan 1994 (ppm)	Feb 1994 (ppm)	Mar 1994 (ppm)	Apr 1994 (ppm)	May 1994 (ppm)	June 1994 (ppm)	July 1994 (ppm)	Aug 1994 (ppm)	Sep 1994 (ppm)	Oct 1994 (ppm)
INT-1	3,600	3,600	1,584	1,029	460	1,050	718	800	608	507	374	375	290	320	252
INT-2	1,800	1,120	900	414	215	174	230	290	301	343	339	602	288	281	426
INT-3	5,200	2,030	1,935	1,389	218	2,080	1,926	1,188	1,362	1,058	1,260	1,548	1,092	932	972
INT-4	610	928	793	526	330	587	1,300	1,300	990	992	541	594	542	430	398
INT-5	960	1,689	536	356	190	263	248	205	159	94	101	92	70	103	86
INT-6	280	973	1,140	556	90	720	451	510	312	210	200	135	180	195	105
INT-7	100	245	1,100	308	24	99	74	99	104	117	140	147	129	101	109
INT-8	75	666	196	90	24	112	103	84	87	62	60	56	53	64	46
INT-9	800	1,413	358	178	101	188	174	142	105	78	77	68	69	70	65
INT-10	1,900	1,328	186	109	57	100	93	112	96	65	62	NS	52	82	56
INT-11	590	1,816	171	117	80	175	186	NS	85	11	44	NS	NS	113	44
INT-12	3,300	1,820	1,255	399	141	364	239	106	123	66	105	65	48	74	26
INT-13	590	924	251	122	40	99	67	63	50	47	89	50	28	50	31
INT-14	24	1,026	492	266	58	226	154	112	162	62	NS	61	84	119	59
INT-15	19	1,760	38	20	9	12	34	20	19	14	19	13	30	47	13
INT-16	2,000	2,230	147	28	6	13	12	15	13	9	11	7	10	68	5
INT-17	7	252	184	81	39	152	25	13	15	12	NS	9	8	19	6
INT-18	4	129	270	183	139	225	230	162	137	76	73	64	51	57	38
INT-19	1,400	1,800	332	158	52	112	76	55	55	43	36	NS	NS	38	39
INT-20	3,500	3,742	3,141	2,123	901	2,147	1,960	2,525	1,844	2,112	1,922	1,930	1,810	1,182	1,500
INT-21	29	301	325	260	130	362	327	240	217	214	214	356	204	190	126
INT-22	8	68	76	45	18	43	58	55	32	41	44	85	101	95	74
INT-23	16	74	112	73	43	48	53	40	32	26	50	241	153	112	68
INT-24	240	434	472	293	38	202	174	136	111	85	89	95	84	84	61
INT-25	36	376	272	169	58	75	60	65	62	32	24	30	25	29	21
INT-26	120	970	837	430	143	203	173	152	131	113	38	111	108	122	112
INT-27	180	324	268	196	107	75	109	116	104	82	85	NS	83	79	75
INT-28	630	648	288	200	57	187	80	48	51	53	34	38	32	37	22
INT-29	1,100	1,120	450	245	74	162	130	104	58	78	65	83	59	76	79
INT-30	1,400	606	294	129	43	112	60	32	28	22	32	26	31	45	38
INT-31	70	540	120	62	29	12	67	52	41	32	25	30	30	82	20
INT-32	880	470	208	119	48	124	26	16	29	20	24	23	25	22	11
INT-33	120	1,710	1,620	910	25	1,374	1,006	255	109	61	47	38	29	20	12
INT-55	NS	NS	53	53	53	235	113	115	76	147	98	141	109	122	76
INT-56	NS	NS	668	668	668	901	824	925	153	515	435	350	314	297	213
INT-57	NS	NS	28	28	28	12	29	40	24	58	61	74	40	66	64
INT-58	NS	NS	102	102	102	10	94	76	67	54	46	44	45	34	32
INT-59	NS	NS	121	121	121	100	104	115	81	50	77	45	112	79	72
INT-60	NS	NS	172	172	172	201	169	195	151	124	118	114	111	110	91
INT-61	NS	NS	56	56	56	79	80	95	54	59	48	43	38	39	31
INT-62	NS	NS	52	52	52	75	197	100	65	36	38	30	56	35	28
INT-65	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	65	116	61	66	54
INT-66	NS	NS	114	114	114	125	132	175	161	97	113	66	83	120	128
INT-205	NS	NS	31	31	31	39	132	120	50	34	39	40	36	61	39
INT-206	NS	NS	24	24	24	218	48	44	45	38	53	75	110	107	87
INT-207	NS	NS	66	66	66	101	71	56	58	38	52	47	29	45	54
INT-208	NS	NS	27	27	27	19	53	20	24	16	38	19	20	22	16
INT-209	NS	NS	35	35	35	40	62	52	51	50	43	46	50	37	20
INT-210	NS	NS	36	36	36	42	48	24	29	25	22	72	32	27	22
INT-211	NS	NS	109	109	109	151	127	88	89	55	57	53	76	43	41
INT-212	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	36	24	22	27	29
INT-213	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	36	135	45	83	144
INT-214	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	35	68	47	46	32
INT-215	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	170	174	94	82	46
INT-216	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	22	21	24	34	22
INT-217	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	62	61	81	66	59

NS = Not Sampled

Figure 4-3

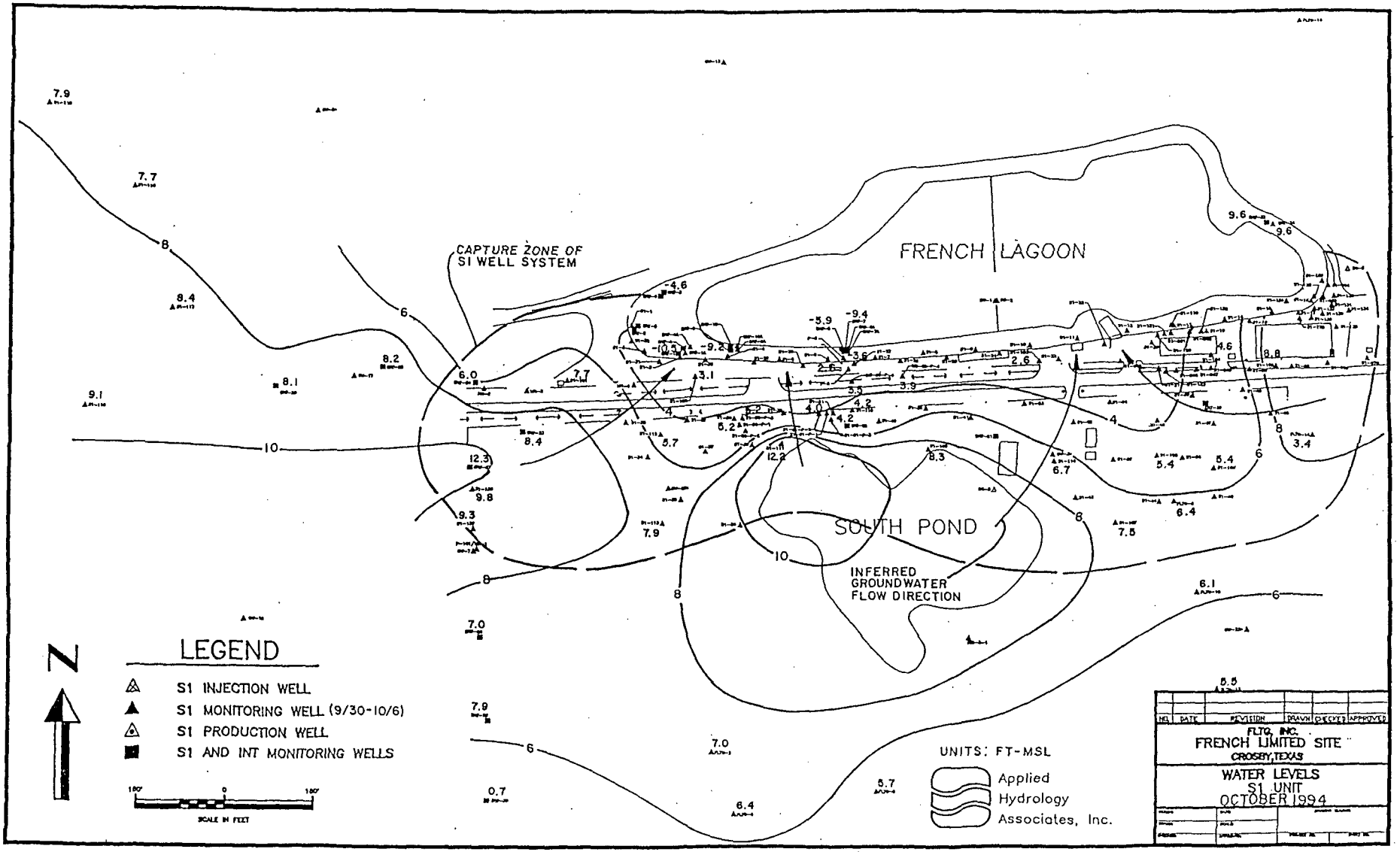

CAPTURE ZONE OF
S1 WELL SYSTEM
FRENCH LAGOON
SOUTH POND
INFERRED
GROUNDWATER
FLOW DIRECTION
LEGEND
S1 INJECTION WELL
S1 MONITORING WELL (9/30-10/6)
S1 PRODUCTION WELL
S1 AND INT MONITORING WELLS
SCALE IN FEET
UNITS: FT-MSL
Applied
Hydrology
Associates, Inc.
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
WATER LEVELS
S1 UNIT
OCTOBER 1994

Figure 4-4

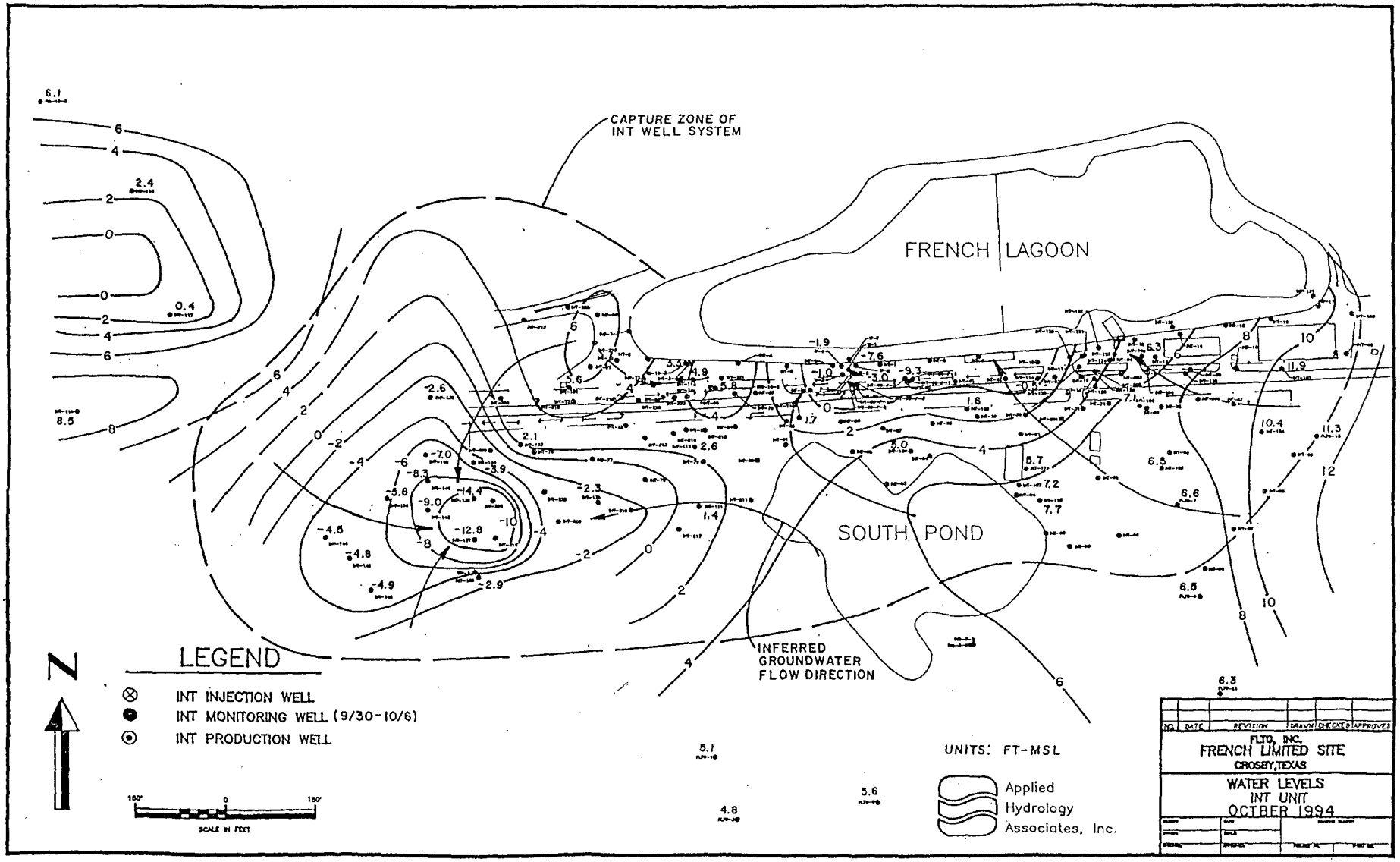

CAPTURE ZONE OF
INT WELL SYSTEM
FRENCH LAGOON
SOUTH POND
INFERRED
GROUNDWATER
FLOW DIRECTION
N
LEGEND
INT INJECTION WELL
INT MONITORING WELL (9/30-10/6)
INT PRODUCTION WELL
SCALE IN FEET
UNITS: FT-MSL
Applied
Hydrology
Associates, Inc.
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
WATER LEVELS
INT UNIT
OCTOBER 1994

Figure 4-5

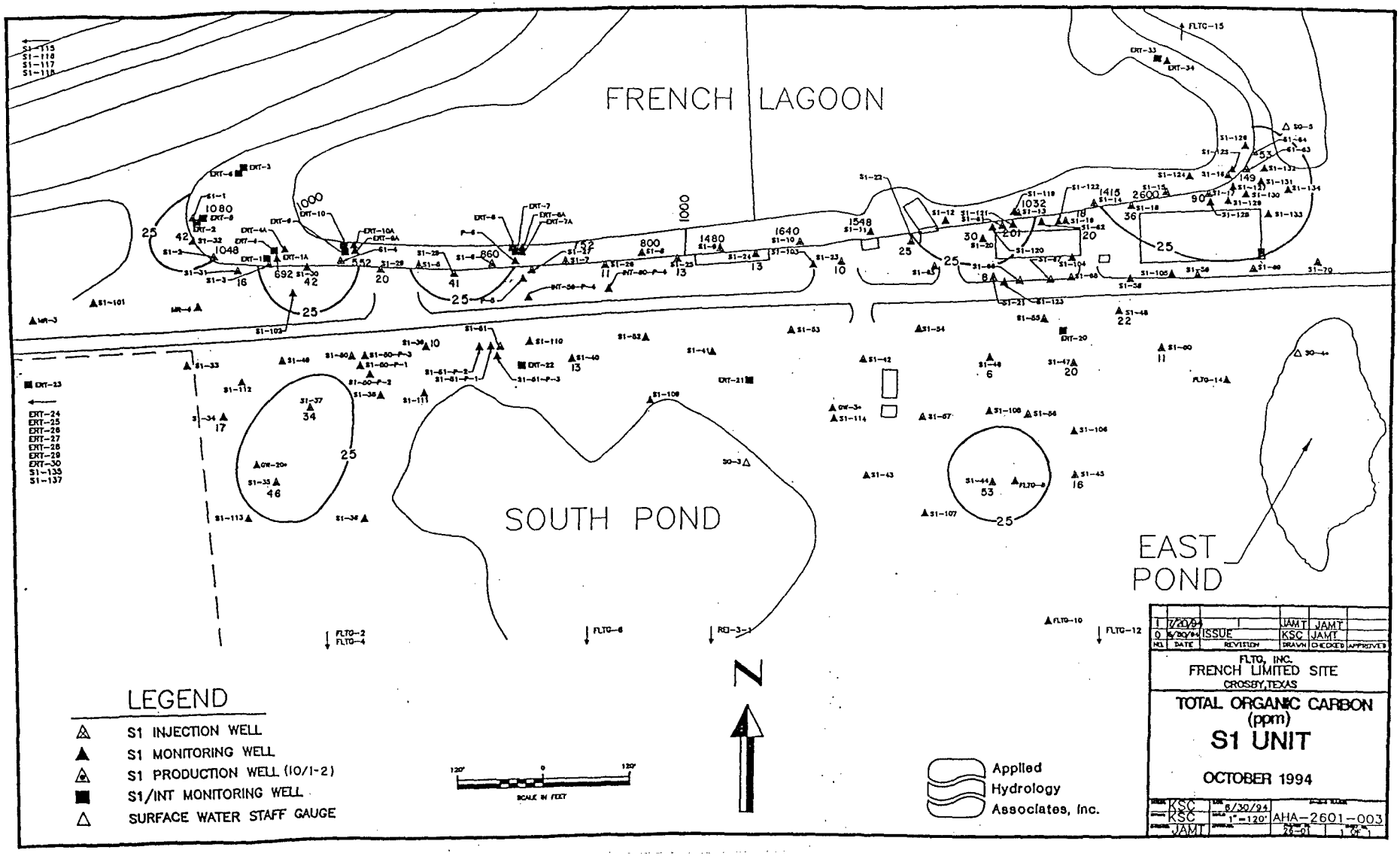

FRENCH LAGOON
SOUTH POND
EAST POND
LEGEND
S1 INJECTION WELL
S1 MONITORING WELL
S1 PRODUCTION WELL (10/1-2)
S1/INT MONITORING WELL
SURFACE WATER STAFF GAUGE
SCALE IN FEET
N
Applied Hydrology Associates, Inc.
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
TOTAL ORGANIC CARBON (ppm)
S1 UNIT
OCTOBER 1994
ISSUE
AHA-2601-003

Figure 4-6

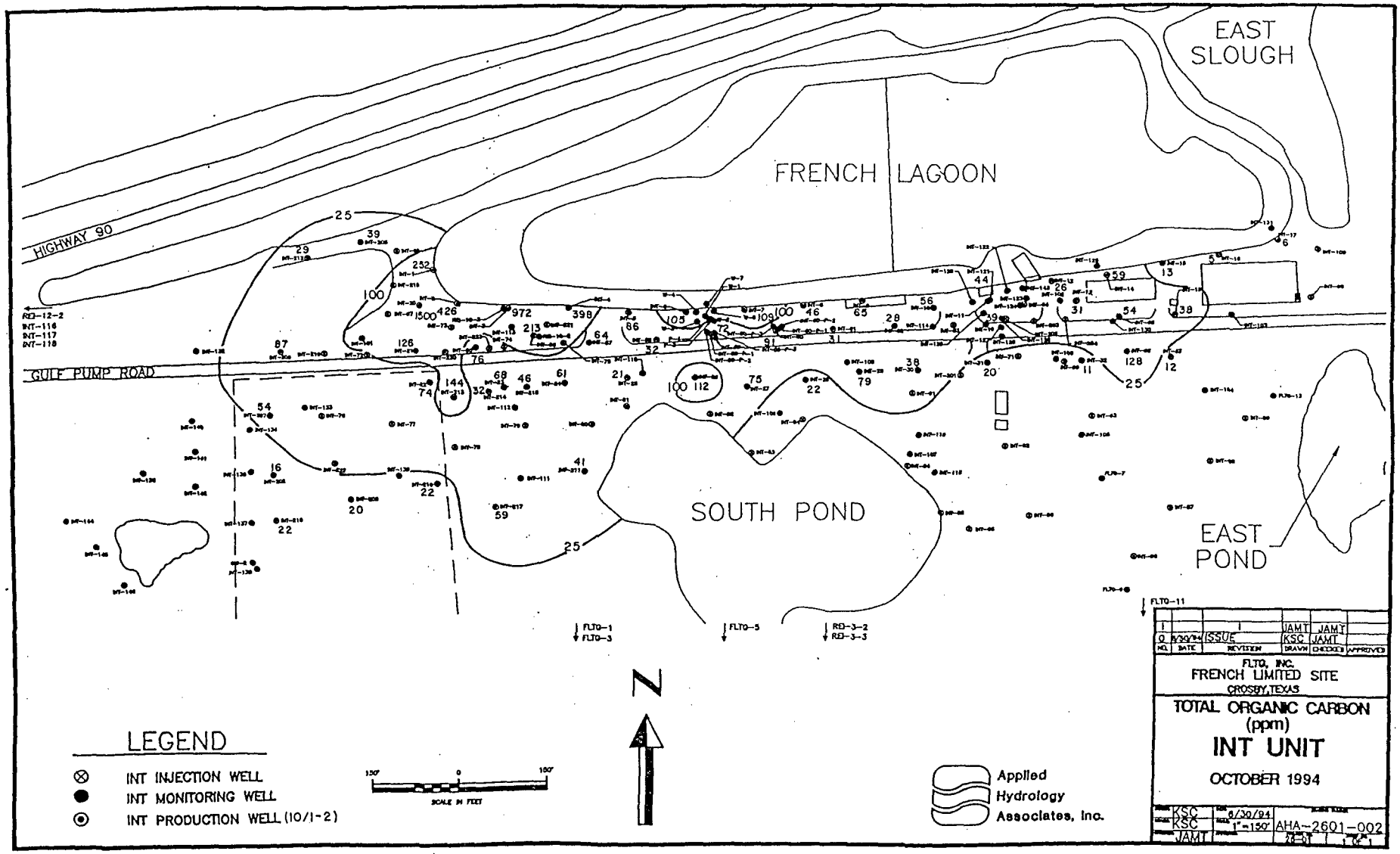

EAST SLOUGH
FRENCH LAGOON
HIGHWAY 90
GULF PUMP ROAD
SOUTH POND
EAST POND
RD-12-2
INT-116
INT-117
INT-118
FLTO-1
FLTO-3
FLTO-5
RD-3-2
RD-3-3
FLTO-11
LEGEND
INT INJECTION WELL
INT MONITORING WELL
INT PRODUCTION WELL (10/1-2)
150' 0 150'
SCALE IN FEET
N
Applied Hydrology Associates, Inc.
FLTO, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
TOTAL ORGANIC CARBON (ppm)
INT UNIT
OCTOBER 1994
ISSUE
JAMT JAMT
KSC JAMT
KSC 6/30/94 1"=150' AHA-2601-002
JAMT

Figure 4-7

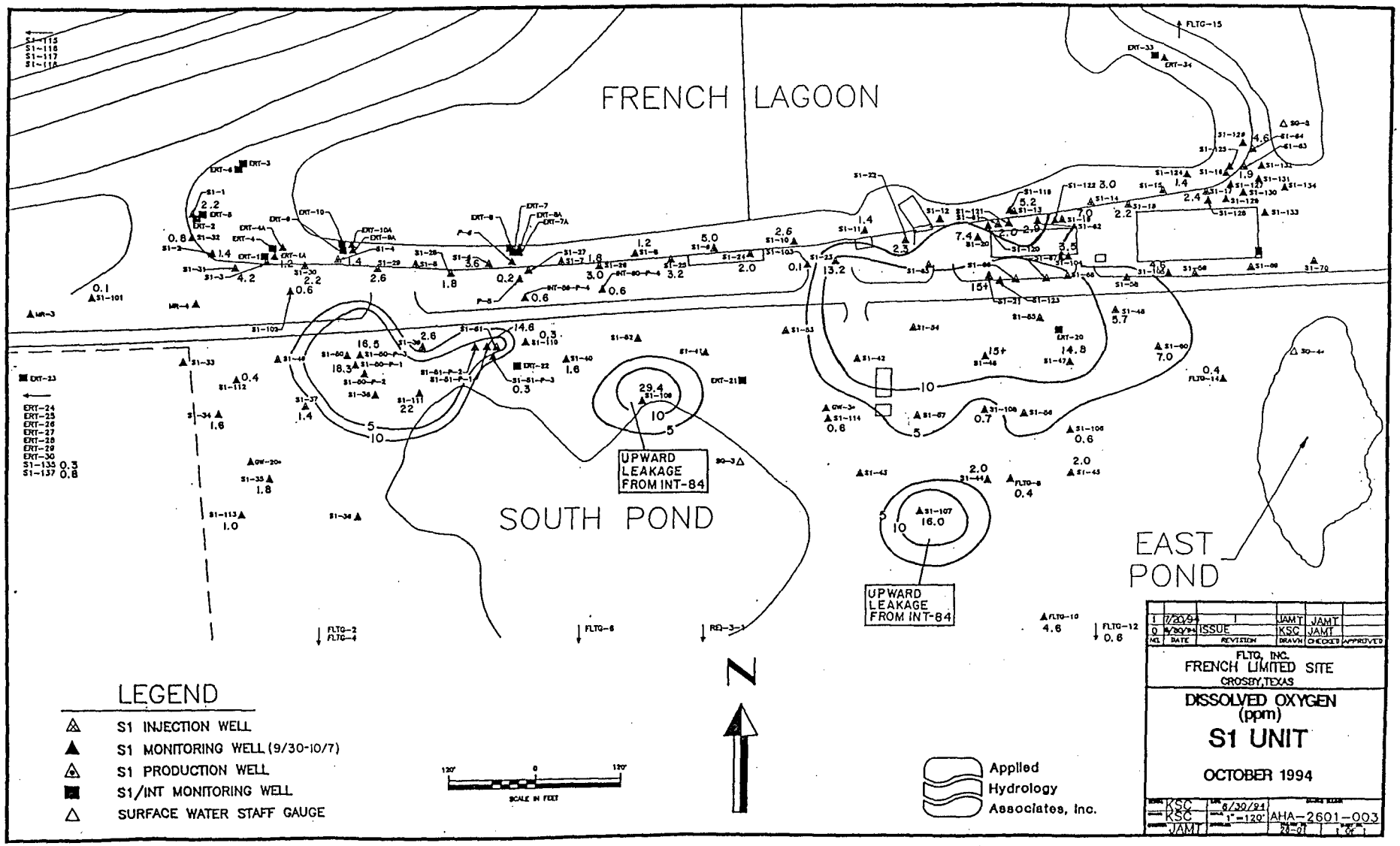
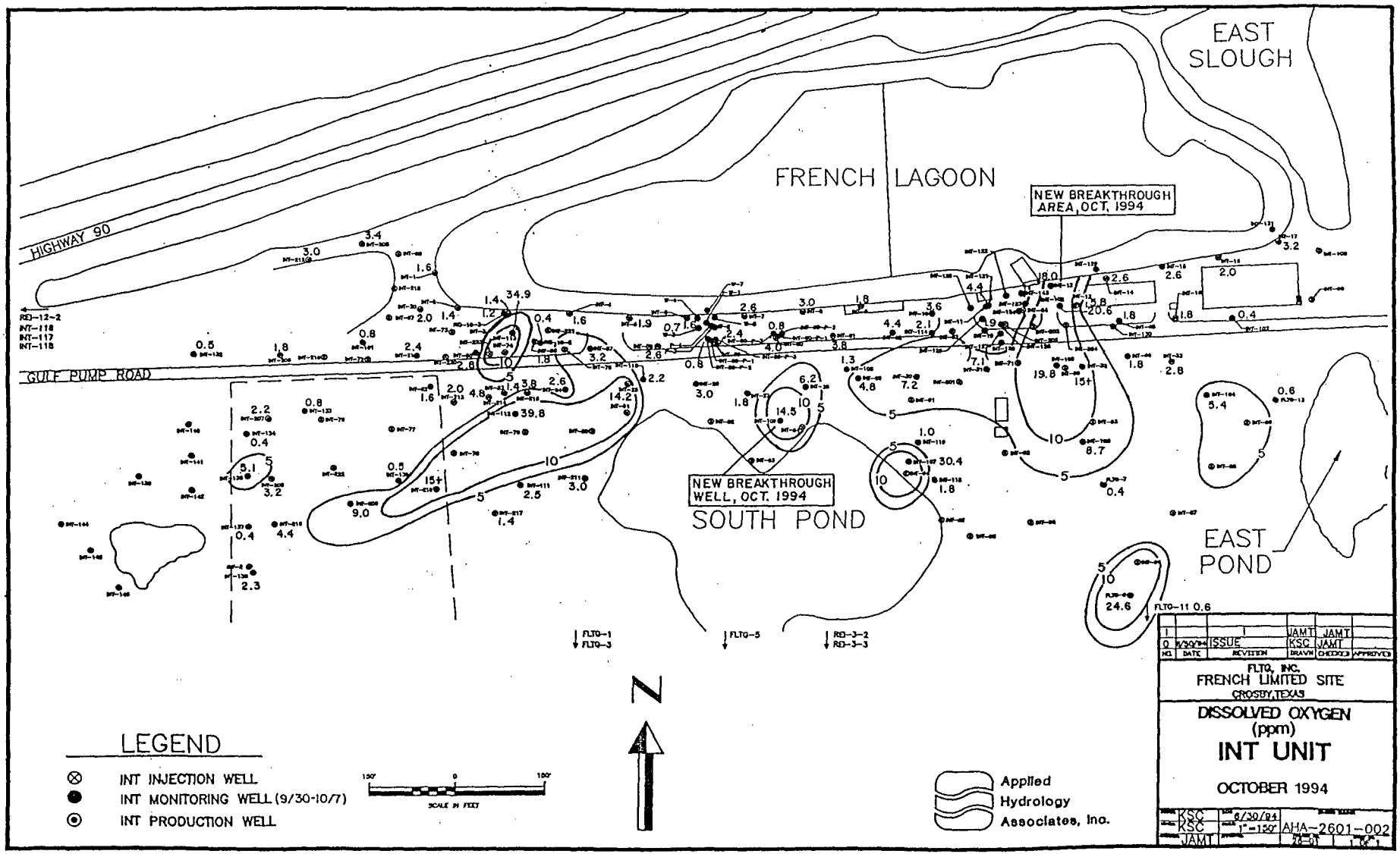

FRENCH LAGOON
SOUTH POND
EAST POND
UPWARD LEAKAGE FROM INT-84
UPWARD LEAKAGE FROM INT-84
LEGEND
S1 INJECTION WELL
S1 MONITORING WELL (9/30-10/7)
S1 PRODUCTION WELL
S1/INT MONITORING WELL
SURFACE WATER STAFF GAUGE
SCALE IN FEET
Applied Hydrology Associates, Inc.
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
DISSOLVED OXYGEN (ppm)
S1 UNIT
OCTOBER 1994
AHA-2601-003

Figure 4-8


EAST SLOUGH
FRENCH LAGOON
NEW BREAKTHROUGH AREA, OCT. 1994
HIGHWAY 90
GULF PUMP ROAD
NEW BREAKTHROUGH WELL, OCT. 1994
SOUTH POND
EAST POND
LEGEND
INT INJECTION WELL
INT MONITORING WELL (9/30-10/7)
INT PRODUCTION WELL
SCALE IN FEET
Applied Hydrology Associates, Inc.
FLTG, INC.
FRENCH LIMITED SITE
CROSBY, TEXAS
DISSOLVED OXYGEN (ppm)
INT UNIT
OCTOBER 1994
AHA-2601-002

4.5.5 Remediation Progress

No additional results of the September 1994 quarterly groundwater monitoring were received in October. Results are not yet available for all wells sampled.

4.6 Schedule

In November: results of the September 1994 quarterly groundwater monitoring should be received; permeability certification test analysis for the INT-11 DNAPL cutoff wall will be finalized; and the response plan for DNAPL at S1-63 will be completed.

5.0 GROUNDWATER TREATMENT PLANT

5.1 Summary of Activities

Plant operations were interrupted on October 17, 1994, due to the flood event at the project. Operations continued until water began to encroach on the lower containment wall in the plant. A chronology of the preparation and shut-down are attached (see Attachment 5A).

Also included are lab results of a Riverdale resident's fish pond that had developed a sheen of what appeared to be oil or fuel. The resident at (b) (6) was concerned about run-off from the Sikes Project as he is directly across U.S. Highway 90 from the completed site (see Attachment 5B).

Samples of the sheet water and run-off at FLTG were collected on two occasions to confirm that no target contaminates left the site (see Attachment 5C).

The treated water summary, Table 5-2, indicated an excursion in chlorinated hydrocarbon due to an elevated value on October 29, 1994. When this was received in operations, the carbon blending valve was trimmed immediately as evidenced by the October 10th and 13th TOC results.

The next sampling for discharge water is scheduled for November 3, 1994.

Flow-through and electrical control checks were completed on October 31, 1994, as full operations are scheduled November 2, 1994.

Maintenance and repairs are recapped in section 8.1.3 of the October Monthly Report.

Total flows for October 1-17, 1994:

Water discharged to the San Jacinto River - 5,091,179 gallons

Water discharged to the Lagoon - 0

Sludge discharged to the Lagoon - 14,725 gallons

Water processed through the GWT - 4,843,893 gallons

Water discharged to the South Pond - 0

Water processed from Cell F to GWT by Rochem - 1,267,900 gallons (included in Attachment 5A)

Water blended passed Carbon Filter - 3,306,368 gallons

Water processed from Cell D to GWT plant - 0

Beneficial land application of Cell D water:metered - 179,500 gallons

5.2 Inoculum/Nutrient Addition

The following have been introduced into the bioreactors/clarifier:

Nutrients:

350 gallons Diammonium Phosphate

Microbes:

16 oz. French Limited Isolated Microbes

Coagulant:

3.0 gallons Percol 778 Cationic Polymer

5.3 Maintenance

Table 5-1 lists the preventive maintenance items performed in October.

5.4 Operating Data

Table 5-2 summarizes the laboratory analysis of the treated water discharged to the San Jacinto River.

TABLE 5-1

Preventive Maintenance

Day	Action
	Maintenance and repairs are recapped in section 8.1.3 of the
	October Monthly Report.

TABLE 5-2
Treated Water Results Summary

Collected	Set No.	pH (6-9)		TSS 5 PPM		TOC 55 PPM		O&G 15 PPM		Benzene 150 PPB		Chlor HC's 500 PPB		Total PCBs 0.65 PPB		Napthalene 300 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
13-Jun-94	M03A0244	7.64		7.		40.1		2.5		6.		602.		.16		5.	
16-Jun-94	M03A0245	7.54		6.		20.9		2.5		2.5		440.		.16		5.	
20-Jun-94	M03A0246	7.44		1.		36.7		2.5		6.		287.		.16		5.	
23-Jun-94	M03A0247	7.38		3.		37.9		2.5		6.		301.		.16		5.	
27-Jun-94	M03A0248	7.36		5.		43.6		2.5		6.		401.		.16		5.	
30-Jun-94	M03A0249	7.43		4.		29.		2.5		2.5		108.		.16		5.	
4-Jul-94	M03A0250	7.79		9.		21.4		2.5		6.		201.		.16		5.	
7-Jul-94	M03A0251	7.47		9.		30.1		2.5		2.5		181.		.16		5.	
11-Jul-94	M03A0252	7.44	7.5	1.	5.	26.8	31.83	2.5	2.5	2.5	4.44	236.	306	.16	.16	5.	5.
14-Jul-94	M03A0253	7.28	7.46	1.	4.33	43.3	32.19	2.5	2.5	6.	4.44	223.	264	.16	.16	5.	5.
18-Jul-94	M03A0254	7.24	7.43	3.	4.	31.9	33.41	2.5	2.5	6.	4.83	348.	254	.16	.16	5.	5.
21-Jul-94	M03A0255	7.27	7.41	1.	4.	43.6	34.18	2.5	2.5	6.	4.83	228.	247	.16	.16	5.	5.
25-Jul-94	M03A0256	7.27	7.39	7.	4.44	38.2	34.21	2.5	2.5	2.5	4.44	204.	237	.16	.16	5.	5.
28-Jul-94	M03A0257	7.31	7.39	4.	4.33	32.5	32.98	2.5	2.5	2.5	4.06	206.	215	.16	.16	5.	5.
1-Aug-94	M03A0258	7.36	7.38	8.	4.78	33.9	33.52	2.5	2.5	6.	4.44	313.	238	.16	.16	5.	5.
4-Aug-94	M03A0259	7.3	7.33	2.	4.	33.6	34.88	2.5	2.5	2.5	4.06	203.	238	.16	.16	5.	5.
8-Aug-94	M03A0260	7.25	7.3	3.	3.33	65.6	38.82	2.5	2.5	2.5	4.06	145.	234	.16	.16	5.	5.
11-Aug-94	M03A0261	7.16	7.27	2.	3.44	81.	44.84	2.5	2.5	2.5	4.06	292.	240	.16	.16	5.	5.
15-Aug-94	M03A0262	7.13	7.25	1.	3.44	76.3	48.51	2.5	2.5	6.	4.06	342.	253	.16	.16	5.	5.
18-Aug-94	M03A0263	7.25	7.26	1.	3.22	26.1	47.87	2.5	2.5	2.5	3.67	104.	226	.16	.16	5.	5.
22-Aug-94	M03A0264	7.33	7.26	1.	3.22	15.	44.69	2.5	2.5	2.5	3.28	242.	228	.16	.16	5.	5.
25-Aug-94	M03A0265	7.46	7.28	2.	2.67	34.7	44.3	2.5	2.5	2.5	3.28	102.	217	.16	.16	5.	5.
29-Aug-94	M03A0266	7.37	7.29	10.	3.33	23.5	43.3	2.5	2.5	2.5	3.28	56.	200	.16	.16	5.	5.
1-Sep-94	M03A0267	7.54	7.31	1.	2.56	23.7	42.17	2.5	2.5	2.5	2.89	44.	170	.16	.16	5.	5.
5-Sep-94	M03A0268	7.69	7.35	3.	2.67	37.2	42.57	2.5	2.5	2.5	2.89	152.	164	.16	.16	5.	5.
8-Sep-94	M03A0269	7.58	7.39	2.	2.56	37.8	39.48	2.5	2.5	2.5	2.89	52.	154	.16	.16	5.	5.
12-Sep-94	M03A0270	7.14	7.39	3.	2.67	38.7	34.78	2.5	2.5	2.5	2.89	152.	138	.16	.16	5.	5.
15-Sep-94	M03A0271	7.25	7.4	2.	2.78	38.3	30.56	2.5	2.5	2.5	2.5	680.	176	.16	.16	5.	5.
19-Sep-94	M03A0272	7.59	7.44	46.	7.78	36.2	31.68	2.5	2.5	6.	2.89	521.	222	.16	.16	5.	5.
22-Sep-94	M03A0273	7.55	7.46	5.	8.22	38.2	34.26	2.5	2.5	6.	3.28	524.	254	.16	.16	5.	5.
26-Sep-94	M03A0274	7.19	7.43	4.	8.44	37.3	34.54	2.5	2.5	2.5	3.28	523.	300	.16	.16	5.	5.
29-Sep-94	M03A0275	7.31	7.43	6.	8.	47.8	37.24	2.5	2.5	2.5	3.28	937.	398	.16	.16	5.	5.
3-Oct-94	M03A0276	7.36	7.41	1.	8.	43.	39.39	2.5	2.5	2.5	3.28	593.	459.	.16	.16	5.	5.
6-Oct-94	M03A0277	7.44	7.38	1.	7.78	43.1	40.04	2.5	2.5	6.	3.67	230.	468.	.16	.16	5.	5.
10-Oct-94	M03A0278	7.61	7.38	1.	7.67	18.7	37.92	2.5	2.5	6.	4.06	310.	497.	.16	.16	5.	5.
13-Oct-94	M03A0279	7.28	7.4	1.	7.44	20.7	35.92	2.5	2.5	6.	4.44	380.	522.	.16	.16	5.	5.
17-Oct-94	M03A0280	Sample destroyed in flood.															

Chlorinated hydrocarbons value is sum of detected concentrations of 21 volatile chlorinated hydrocarbons on target compound list.

TABLE 5-2 (Continued)
Treated Water Results Summary

Collected	Set No.	As 150 PPB		Ba 200 PPB		Cd 50 PPB		Cr 500 PPB		Cu 15 PPB		Pb 66 PPB		Mn 300 PPB		Hg 1 PPB		Ni 148 PPB		Se 20 PPB		Ag 5 PPB		Zn 162 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
13-Jun-94	M03A0244	11.		82.		.8		13.		9.		1.		19.		.1		12.		1.		3.8		14.	
16-Jun-94	M03A0245	12.		94.		1.		1.		10.		1.		21.		.1		12.		1.		3.		7.	
20-Jun-94	M03A0246	9.7		116.		1.2		.9		12.		1.		14.		.1		10.		2.		2.8		6.	
23-Jun-94	M03A0247	14.		122.		1.5		.8		11.		1.		21.		.1		7.5		1.		2.5		11.	
27-Jun-94	M03A0248	10.		121.		1.5		9.		12.5		1.		18.		.1		9.6		1.		3.6		16.	
30-Jun-94	M03A0249	13.		108.		1.5		:3		7.		1.		9.		.1		8.		1.		3.		5.	
4-Jul-94	M03A0250	16.		68.5		.2		.3		3.5		.5		9.6		.1		3.1		1.		2.6		12.	
7-Jul-94	M03A0251	14.9		104.		.3		.8		11.		1.		20.		.1		5.		1.		3.		10.	
11-Jul-94	M03A0252	10.	12.3	110.	102.8	.5	.9	.5	3.	5.	9.	1.5	1.	10.	15.7	.1	.1	4.	7.9	1.5	1.2	3.	3.	10.	10.1
14-Jul-94	M03A0253	18.	13.1	105.	105.4	.3	.9	.3	1.5	6.	8.7	.8	1.	7.	14.4	.1	.1	4.5	7.1	.8	1.1	1.5	2.8	17.	10.4
18-Jul-94	M03A0254	10.	12.8	60.	101.6	.5	.8	.5	1.5	4.	8.	1.5	1.	10.	13.2	.1	.1	2.	6.	1.5	1.2	2.	2.7	10.	10.8
21-Jul-94	M03A0255	10.	12.9	100.	99.8	.5	.7	.5	1.4	6.	7.3	1.5	1.1	7.	12.4	.1	.1	7.	5.6	1.5	1.1	1.	2.5	10.	11.2
25-Jul-94	M03A0256	8.	12.2	110.	98.5	.3	.6	.3	1.4	3.	6.4	.8	1.1	6.	10.7	.1	.1	6.	5.5	2.	1.3	.5	2.2	6.	10.7
28-Jul-94	M03A0257	13.	12.5	64.	92.2	.3	.5	.6	.4	15.	6.7	.8	1.	29.	12.	.1	.1	6.	5.1	2.	1.4	.5	1.9	8.	9.8
1-Aug-94	M03A0258	8.	12.	100.	91.3	.3	.3	3.	.7	141.	21.6	4.	1.4	15.	12.6	.1	.1	5.	4.7	.8	1.3	.5	1.6	106.	21.
4-Aug-94	M03A0259	14.	11.8	104.	95.2	.3	.3	.3	.7	5.	21.8	.8	1.4	7.	12.3	.1	.1	11.	5.6	.8	1.3	.5	1.4	10.	20.8
8-Aug-94	M03A0260	11.	11.3	110.	95.9	.3	.3	1.5	.8	6.	21.2	.8	1.4	7.	10.9	.1	.1	15.	6.7	2.	1.4	.5	1.1	14.	21.2
11-Aug-94	M03A0261	14.	11.8	105.	95.3	.3	.3	1.	.9	3.	21.	.8	1.3	5.	10.3	.1	.1	10.	7.4	5.	1.8	.5	.8	12.	21.4
15-Aug-94	M03A0262	14.	11.3	94.	94.1	.3	.3	.3	.9	2.	20.6	.8	1.3	4.	10.	.1	.1	7.	7.7	.8	1.8	.5	.7	9.	20.6
18-Aug-94	M03A0263	14.	11.8	89.	97.3	.3	.3	1.	.9	5.	20.7	.8	1.2	3.	9.2	.1	.1	14.	9.	.8	1.7	.5	.6	12.	20.8
22-Aug-94	M03A0264	9.	11.7	70.	94.	.3	.3	.3	.9	10.5	21.2	.8	1.1	3.	8.8	.1	.1	2.	8.4	.8	1.6	.5	.5	5.	20.2
25-Aug-94	M03A0265	10.	11.9	88.	91.6	.3	.3	.3	.9	1.	20.9	.8	1.1	2.	8.3	.1	.1	3.	8.1	.8	1.5	.5	.5	3.	19.9
29-Aug-94	M03A0266	20.	12.7	80.	93.3	.3	.3	3.	1.2	5.	19.8	.8	1.1	.5	5.2	.1	.1	10.	8.6	1.5	1.4	.5	.5	12.	20.3
1-Sep-94	M03A0267	14.	13.3	70.	90.	.3	.3	1.	.9	2.	4.4	.8	.8	3.	3.8	.1	.1	7.	8.8	.8	1.4	.5	.5	5.	9.1
5-Sep-94	M03A0268	17.	13.7	62.	85.3	1.3	.4	2.5	1.2	1.3	4.	1.3	.8	5.	3.6	.1	.1	10.	8.7	1.3	1.5	2.5	.7	8.	8.9
8-Sep-94	M03A0269	10.	13.6	50.	78.7	1.3	.5	2.5	1.3	1.3	3.4	1.3	.9	4.	3.3	.1	.1	5.	7.6	1.3	1.4	2.5	.9	3.8	7.8
12-Sep-94	M03A0270	12.	13.3	45.	72.	1.3	.6	2.5	1.5	4.	3.6	1.3	.9	3.	3.1	.1	.1	2.5	6.7	1.3	1.	2.5	1.2	10.	7.5
15-Sep-94	M03A0271	13.	13.2	50.	67.1	1.3	.7	2.5	1.7	3.	3.7	1.3	1.	1.3	2.8	.1	.1	7.	6.7	1.3	1.1	2.5	1.4	24.	9.2
19-Sep-94	M03A0272	10.	12.8	54.	63.2	1.3	.8	2.5	1.9	4.	3.6	1.3	1.	11.	3.6	.1	.1	5.	5.7	1.3	1.1	2.5	1.6	10.	9.
22-Sep-94	M03A0273	12.	13.1	64.	62.6	1.3	.9	2.5	2.1	4.	2.8	1.3	1.1	22.	5.8	.1	.1	5.	6.1	1.3	1.2	2.5	1.8	11.	9.6
26-Sep-94	M03A0274	14.	13.6	61.	59.6	1.3	1.	2.5	2.4	1.3	2.9	1.3	1.1	4.	6.	.1	.1	5.	6.3	1.3	1.2	1.3	1.9	3.8	9.7
29-Sep-94	M03A0275	15.	13.	78.	59.3	1.3	1.1	2.5	2.3	1.3	2.5	1.3	1.2	5.	6.5	.1	.1	5.	5.7	1.3	1.2	2.5	2.1	10.	9.5
3-Oct-94	M03A0276	13.	12.9	60.	58.2	1.3	1.3	2.5	2.5	3.	2.6	1.3	1.3	11.	7.4	.1	.1	20.	7.2	1.3	1.3	2.5	2.4	9.	9.9
6-Oct-94	M03A0277	14.	12.6	73.	59.4	1.3	1.3	2.5	2.5	3.	2.8	1.3	1.3	9.	7.8	.1	.1	2.5	6.3	1.3	1.3	2.5	2.4	3.8	9.5
10-Oct-94	M03A0278	11.	12.7	58.	60.3	1.3	1.3	2.5	2.5	3.	3.	1.3	1.3	1.3	7.5	.1	.1	1.3	5.9	1.3	1.3	2.5	2.4	10.	10.2
13-Oct-94	M03A0279	10.	12.4	70.	63.1	1.3	1.3	2.5	2.5	2.5	2.8	1.3	1.3	3.	7.5	.1	.1	2.5	5.9	1.3	1.3	2.5	2.4	3.8	9.5
17-Oct-94	M03A0280	Sample destroyed in flood.																							

Metals values in PPB.

ATTACHMENT 5A

FLTG Flood Event/Operations

French, Ltd. Project

FLTG, Incorporated

1024 GULF PUMP ROAD, CROSBY, TEXAS 77532 PHONE 713-328-1648 FAX 713-328-2996

October 26, 1994

To: R.L. Sloan

From: M. Collins

Re: FLTG Flood Event/Operations

Enclosed are the composite notes from operation logs prior to and during the flooding at the project.

Within the next two to three weeks I will make an assessment of process equipment and instrumentation. The preparation for and restoration of the project has been assigned TASK F-10 to better track the costs.

These costs would not have been as extensive had we had 4-6 hours additional time as operating personnel were concentrating on contaminate and chemical containment which was successful throughout the event.

Goals for restoration and process start-up have been set as follows:

October 28 - Complete office clean-up for contractor remodeling

October 31 - GWT plant pump and motor rehab complete

November 2 - Instrumentation and controls check out GWT plant

November 3 - GWT plant re-seed and start bioreactors
Start up west INT production wells

November 4 - Start up S1 - 1 thru 16 production wells for bioreactor food

November 5 - Process sampling if above is successful

November 5 - Complete shop and warehouse clean-up
Balance of wells on line as controls are repaired

M. Collins

MC:mp

FLTG FLOOD EVENT, OCTOBER 14, 1994

Rainfall amounts were recorded from Newport Waste Water Treatment Plant - Site Met Station out of service.

Friday, 10/14

- Cell F water transferred to Cell D for final 6,000 yds. of cap.
- 22 tons of lime delivered for sludge stabilization.
- Rochem advised to process 300,000 gal. of water from Cell D to provide 3' of freeboard for waste water flows and rainfall.

17:00 Hrs. Rain started.

Saturday, 15 Rain continued - opened slough knife valves to drain sheet water off backfill.

Sunday, 16 Rain continued - notified Remedial Construction to come to site and reinforce retaining dam at Cell F and D.

Accumulated rainfall 7.30".

Monday, 17 Rain continued - instituted Phase I of flood drill.

08:00 Hrs. Exercised flood gate.
Checked wall penetrations.
Monitored Harris County Flood Control Dist.

10:00 Hrs. Rainfall 17.10".
Water flooding across Gulf Pump Road.
Harris County Flood Control advises flood conditions on Lake Houston Water Shed - No significant effects below dam.

13:30 Hrs. Began Phase II of Flood Preparedness.
Rainfall 22.0".

- Called three additional personnel in to work.
- Advised on-site personnel to check their homes and leave if they were needed at home.
- North and East Slough valves closed.
- Received 6" x 6" diesel pump to remove sheet water from lagoon.
- Received 2 U-Haul Trucks to start loading computers and documents.
- Started locating, tying down floating equipment on south parking lot.

- Notified buyers of equipment that we began filling holds in barges and dredges with water (need response immediately if they want to load and ship).
- Turned off S1 pumping well South of Gulf Pump Road (water starting to run into vaults).
- Reinforced dam around Cell F and D.
- T-101 level rising above 16'. Directed Rochem to San Jacinto River and advised operator to increase T.O.C. analyzer set points from 48 to 55 p.p.m.

15:00 Hrs. Dick Sloan, Will Schorp, Mark Collins, operations staff meeting.

Discussed health and safety issues involved with Phase III shut down.

We had to assume water was going to continue to rise with this much rainfall.

Result: Call Data Manager in for computer take-down and prepare for shut down.

Walk site to identify records to save.

Notify Rochem that we will keep power to them as long as possible to keep processing water from Cell D. Operations : activate 4" pump from Cell F to Cell D to complete emptying F - approx. 60,000 gals. water; start filling empty and partially filled tanks; make assignment list for designated tasks.

16:00 Hrs. Rainfall update 23.10". Flood Control Issues Lake Houston Dam Cresting at 09:00-12:00 Hrs. Tuesday, October 18. Rain has momentarily stopped.

16:30 Hrs. Start computer and records removal.

17:15 Hrs. Heavy rainfall starts - Weather Service issues warning in N.E. Harris County that severe rain and hail storm moving into area - 3-5" per hour expected.

East Pond Gage at 11.4' M.S.L. Dry Gulf Pump Road elevation 10.6' M.S.L. Water rising 6" per hour.

Operations start moving equipment into lagoon in anticipation of flood gate closure.

20:00 Hrs. Shut down injection well system.

21:00 Hrs. Shut down well system - production.

21:30 Hrs.	Shut down ground water treatment plant.
22:00 Hrs.	Water into east parking lot and 3′ deep on Gulf Pump.
23:00 Hrs.	Prioritized office records and lab equipment as water was rising too quickly. Launched two work skiffs - gas, vests, lights.
	Designated additional night crew members.
	Closed flood gate - Rochem advised.
Tuesday, 18 01:00 Hrs.	Two U-Hauls loaded with records and computers left site with water over hoods.
	Rochem advised all operations staff moved to high road.
	Three staff to stay on duty to evacuate Rochem if needed and keep sheet water pumps running.
08:10 Hrs.	Water 4 ft. high on flood gate and raining heavily. Pumps keeping sheet water pumped off Cell F. Cell F empty.
13:00 hrs.	Sheet water broke into Cell F. Pump not able to keep up - ~~collected V.O.C. of storm water in F and runoff.~~
19:00 Hrs.	Rain has stopped.
22:00 Hrs.	Water within two feet of top of wall. Rochem personnel requested to leave.
	Monitor activities from Gulf Pump Road.
	Lease motel room for operating staff and computer storage.
Wednesday, 19	Total rainfall 28.66 inches.
	Lake Houston to crest at 12:00 to 15:00 Hrs. Monitored water levels.
16:00 Hrs.	Water at 8 to 10" below top of sheet pile and rose no further.
Thursday & Friday	As water levels receeded, equipment was relocated out of south pond, road and driveways. Collected V.O.C. samples of cell F sheet water and Runoff Developed Daily Work Plan for entry and clean up.

Daily Work Plan

Date: 10/22/94

Specific Jobs	Personnel Assigned	Health & Safety Issues	Comments
Today (10/22, Sat.)		Varmints !	Dwayne -
Gulf Pump Road power up	W.W./HL&P	Disconnect service to MCC I & III	Instrumentation and controls, evaluate
Reset Hydro Tank at Wells 1 & 2	Fred,Bubba A&L Well McRay Crane	Overhead loads Crane set on Gulf Pump	Fred pull booster pumps 1 & 2 and ship
Pump water out of T-101	Bubba,Chris	pinch points	
Refurbish well controller and chlorinator	S.T.S.	Gas chlorinator-possible cylinder valve damage	
Office furniture and records	Neil & Jeff	Sharp edges and back	Order water truck
Maintain sheet water pump	Fred	strain	
Locate Inst. and evaluate	Chris	Slips and trips	
Today + 1 (10/23, Sun.)		Varmints !	
Restore power to west well	W.W.	Lock and tag	Dwayne - need
Lay 4" water line off fence	Ron, Steve	Prott - unstable soil	damage est.
Restore controller T-3 water tank	Dwayne	Lock and tag	Night crew
Start evaluate elec. systems at office - furniture and debris	Neil & Jeff Chris	Slip, trip and fall	Wash down walls
Pump water out of GWT plant		Wash hand often !	
Today + 2 (10/24, Mon.)			
Pump water from dredge and barges	Bubba	Pinch points, unstable	
Offices clean up, lunch room & AHA	Neil & Jeff	equip.	
Clean up parking area - furniture	Steve,Neil & Jeff	Slips and trips Backup equipt. - congested	
Set booster pumps 1 & 2	Fred	area	
Lab clean up	Chris	Lock and tag	
Dressing room	Ron	Acids, caustic materials	
East well work	A&L/STS		
Instruments	Dwayne	Lock and tag - work with 3 different trades	
Buster backfill trucks start		Traffic	

Daily Work Plan

Date: 10/22/94

Specific Jobs	Personnel Assigned	Health & Safety Issues	Comments
Today (10/25, Tues.)			
Clean up - dressing areas, laundry, hall	Neil, Jeff	Sharp edges, slip and trip, back strain	Deliver construction office
Lab	Jesse	Caustic, acids, unstable ceiling	Take pumps of rent Dumpster moved
Inventory manuals	K, & Ron	Varmints & back strain	
Drill holes in brick ledge	Ron	Back strain, pinch points	
Complete pumping barges	Bubba		
Pull priority motors and blowers	Bubba,Fred	Lock and tag, pinch points	
Home runs and receptacles offices	W.W. Elec.	A lot of activity in office	Activate air compressor
Control wiring #1 & 2 wells	W.W. Elec.	Lock and tag	
Controls	Dwayne	Ladder safety	
Today + 1 (10/25, Wed.)		Varmints !	
Complete office clean up, laundry, safety room	Neil & Jeff	Sharp edges, use face shields	Clean tools and boxes
Shop clean up	Neil & Jeff	Slips and trips	
Pull motors and blowers	Bubba/Fred	Lock and tag	Leaking KNO_3 tank
GWT controls	Dwayne	Lock and tag	
Rig sampling trailer to pump monitoring wells	Jesse, Ron	Unstable ground, water in controls	
Clean up sidewalks	Edward/ Jerry	Slip and trip	
Run water and connect sewer line to office		Ladder work	Will, Mark, Dick
Remove grit from offices	"		Well control
Rehab controls at Wells 1 & 2	W.W. Elec.		$10,000 + labor
Install temp. power to septic	"		
Activate power to lift station	"		
Activate generator to Rochem	"		
Wire in power to const. office	"		
Wire in telephone to const. office	"		
Continue rehab of recept. and lights, office bldg.	"		
Install Cl_2 water at well #1	S.T.S.		
Run lights in warehouse - generator	W.W. Elec.		
Backfill	Buster		

ATTACHMENT 5B

Sample Results: (b) (6) [redacted] **Pond**

Sample Results: (b) (6) Pond

Volatile Compounds

1,1,1-Trichloroethane	< 5
1,1,2,2-Tetrachloroethane	< 5
1,1,2-Trichloroethane	< 5
1,1-Dichloroethane	< 5
1,1-Dichloroethene	< 5
1,2-Dichloroethane	< 5
1,2-Dichloroethene(Total)	< 5
1,2-Dichloropropane	< 5
2-Butanone	< 10
2-Chlorethylvinyl ether	< 10
2-Hexanone	< 10
4-Methyl-2-Pentanone	< 10
Acetone	< 10
Benzene	< 5
Bromodichloromethane	< 5
Bromoform	< 5
Bromomethane	< 10
Carbon Tetrachloride	< 5
Carbon disulfide	< 5
Chlorobenzene	< 5
Chloroethane	< 10
Chloroform	< 5
Chloromethane	< 10
Dibromochloromethane	< 5
Dichloromethane	12
Ethylbenzene	< 5
Styrene	< 5
Tetrachloroethene	< 5
Toluene	< 5
Trichloroethene	< 5
Vinyl Acetate	< 10
Vinyl Chloride	< 10
Xylene (total)	< 5
cis-1,3-Dichloropropene	< 5
trans-1,3-Dichloropropene	< 5

Sample Results: (b) (6) [redacted] Pond

Semivolatile Compounds

1,2,4-Trichlorobenzene	< 10
1,2-Dichlorobenzene	< 10
1,3-Dichlorobenzene	< 10
1,4-Dichlorobenzene	< 10
2,4,5-Trichlorophenol	< 50
2,4,6-Trichlorphenol	< 10
2,4-Dichlorophenol	< 10
2,4-Dimethylphenol	< 10
2,4-Dinitrophenol	< 50
2,4-Dinitrotoluene	< 10
2,6-Dinitrotoluene	< 10
2-Chloronaphthalene	< 10
2-Chlorophenol	< 10
2-Methylnaphthalene	< 10
2-Methylphenol	< 10
2-Nitroaniline	< 50
2-Nitrophenol	< 10
3,3-Dichlorobenzidine	< 20
3-Nitroaniline	< 50
4,6-Dinitro-2-methylpheno	< 50
4-Bromophenyl phenyl ehte	< 10
4-Chloro-3-methylphenol	< 10
4-Chloroaniline	< 10
4-Chlorophenyl phenyl eth	< 10
4-Methylphenol	12
4-Nitroaniline	< 50
4-Nitrophenol	< 50
Acenaphthene	< 10
Acenaphthylene	< 10
Anthracene	< 10
Benzo(a)anthracene	< 10
Benzo(a)pyrene	< 10

Benzo(g,h,i)perylene	< 10
Benzo(k)fluoranthene	< 10
Benzo)b)fluoranthene	< 10
Benzoic Acid	16
Bis(2-chloroethoxy)methan	< 10
Bis(2-chloroethyl)ether	< 10
Bis(2-chloroisopropyl)eth	< 10
Bis(2-ethylhexyl)phthalat	< 10
Butyl benzyl phthalate	< 10
Chrysene	< 10
Di-n-butyl phthalate	< 10
Di-n-octyl phthalate	< 10
Dibenzo(a,h)anthracene	< 10
Dibenzofuran	< 10
Diethyl phthalate	< 10
Dimethyl phthalate	< 10
Fluoranthene	< 10
Fluorene	< 10
Hexachlorcyclopentadiene	< 10
Hexachlorobenzene	< 10
Hexachlorobutadiene	< 10
Hexachloroethane	< 10
Indeno(1,2,3-cd)pyrene	< 10
Isophorone	< 10
N-Nitrosodi-n-propylamine	< 10
N-Nitrosodiphenylamine	< 10
Naphthalene	< 10
Nitrobenzene	< 10
Pentachlorophenol	< 50
Phenanthrene	< 10
Phenol	< 10
Pyrene	< 10

ATTACHMENT 5C

Lagoon Backfill Run-Off Samples

Lagoon Backfill Run-off Samples

Sample Name =>	Run Off	Cell F Liquor	Run Off
Date Collected =>	21-Oct-94	21-Oct-94	22-Oct-94

Compound			
Chloromethane	10 U	10 U	10 U
Bromomethane	10 U	10 U	10 U
Vinyl chloride	10 U	10 U	10 U
Chloroethane	10 U	10 U	10 U
Methylene Chloride	5 U	5 U	5 U
Acetone	10 U	28	10 U
Carbon disulfide	5 U	5 U	5 U
1,1-Dichloroethene	5 U	5 U	5 U
1,1-Dichloroethane	5 U	5 U	5 U
1,2-Dichloroethene(Total)	5 U	5 U	5 U
Chloroform	5 U	5 U	5 U
1,2-Dichloroethane	5 U	5 U	5 U
2-Butanone	10 U	10 U	10 U
1,1,1-Trichloroethane	5 U	5 U	5 U
Carbon Tetrachloride	5 U	5 U	5 U
Vinyl acetate	10 U	10 U	10 U
Bromodichloromethane	5 U	5 U	5 U
1,2-Dichloropropane	5 U	5 U	5 U
cis-1,3-Dichloropropene	5 U	5 U	5 U
Trichloroethene	5 U	5 U	5 U
Dibromochloromethane	5 U	5 U	5 U
1,1,2-Trichloroethane	5 U	5 U	5 U
Benzene	5 U	5 U	5 U
trans-1,3-Dichloropropene	5 U	5 U	5 U
2-Chloroethylvinyl ether	5 U	5 U	5 U
Bromoform	5 U	5 U	5 U
4-Methyl-2-pentanone	10 U	10 U	10 U
2-Hexanone	10 U	10 U	10 U
Tetrachloroethene	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U
Toluene	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U
Styrene	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U

All Values in ug/L.
U = undetected at listed detection limit.

6.0 AMBIENT AIR MANAGEMENT

Ambient air quality management continued on an "as-needed" basis to protect the environment, human health, and site workers.

6.1 Summary of Activities

Collected and analyzed three time-integrated personnel exposure samples; the measured levels of volatile organic compounds were well below the action levels.

Sampled the ambient air in all work areas several times per shift and on a random "spot-check" basis; there were no levels of volatile organic compounds which required response action. Sampled ambient air in special work areas where burning and/or welding was planned. Sampled ambient air continuously in areas where exposure could occur.

6.2 Problems and Response Action

Problem	Response Action
Calibrate portable vapor meters.	Train operators to calibrate; refurbish all meters.
Sampling "hot" wells.	Require respirator use when sampling "hot" wells.
Ambient air quality in all work areas.	Check all work areas with portable meter several times per day.
H_2S levels in some well vaults.	Vent vault and purge with air before working in the vaults.

6.3 Problems Resolved

None.

6.4 On-going Events/Activities

Measure ambient air quality in all work areas several times per day.

Conduct time-integrated sampling in all major work areas.

Require respiratory protection when sampling "hot" wells.

Conduct necessary air sampling and analyses to issue "burn" permits.

Closely monitor ambient air quality in the vicinity of new projects/activities.

Conduct respirator fit tests on all employees.

7.0 QUALITY ASSURANCE/QUALITY CONTROL

7.1 Summary of Activities

7.1.1 Sampling

One set of personal air monitoring samples were collected in October. The following is a summary of current routine and special air matrix code sample specifics:

MATRIX CODE	SAMPLE SPECIFICS
M01D	TF at three locations

TF = Tenax® front tube

Due to the October 17, 1994 flood event, the treated water discharge sample collected on October 17, 1994 was destroyed. There were no subsequent treated water samples collected in the month of October. All other sampling activities were curtailed after October 17, 1994 with the exception of Cell F sheet water run-off samples. Table 7-1 is a summary of the air, soil and water samples collected for the month of October. Table 7-2 is a summary of Scheduled Sampling Events for the month of October.

7.1.2 Data Validation Activities Summary

7.1.2.1 Treated Water Samples

Data validation has been completed for sample sets M03A0270, M03A0271, M03A0272, M03A0273, M03A0274, M03A0275, M03A0276, M03A0277, M03A0278 and M03A0279. These samples were collected between September 12, 1994 and October 13, 1994. QC failures are summarized in Table 7-3. Completeness values are summarized in Tables 7-4 through 7-8.

7.1.2.2 Groundwater Samples

Level I manual data validation was performed on all groundwater sample sets submitted this period. Data has been received, but not validated for the 3rd quarter 1994 groundwater monitoring event. QC results for these samples will be reported in the November monthly report.

7.1.2.3 Other Samples

All other special sample sets were validated manually this period.

7.2 Data Validation QC Summary and Discussion

7.2.1 Level I and Level II QC Philosophy

The Quality Assurance Project Plan (QAPP) defines data validity in terms of procedural requirements which must be followed for data comparability, and numerical data quality objectives which must be met to assure precision and accuracy of the results. Precision, accuracy and completeness are the numerical Data Quality Objectives (DQOs) established for the French Project by the QAPP. The intent of the data validation process is to verify that the documentation and quality control data provided by the laboratory properly substantiate the required data quality.

For purposes of data validation procedures, the QAPP defines two QC levels: Level I and Level II. Level I data validation is specified for process control and progress monitoring sample data validation and Level II data validation is specified for remediation verification sample results and treated water discharge sample results.

7.2.2 QA Issues

7.2.2.1 Treated water discharge samples - Semivolatile QC Failures

All semi-volatile matrix spike / matrix spike duplicate analyses this month had percent recovery failures (see Table 7-3). An examination of laboratory control sample recovery data and the chromatograms for these samples confirmed matrix effect. The chromatograms had many extraneous peaks. Several tentatively identified compounds (TICs) were reported, most of which were identifiable. Most of the TICs were reported as "UNKNOWN". The lab has been instructed to run a lab control sample or blank spike with every MS/MSD pair to confirm matrix effect.

TABLE 7-1

Samples Collected - October, 1994

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
Special-1	Cell F water	Cell F	10/21	10/24	N	A
Special-2	Cell F sheet water run-off	Run-off	10/21	10/24	N	A
Special-3	Cell F sheet water run-off	Run-off	10/22	10/24	N	A
Special-4	Riverdale residential pond water	(b) (6)	10/25	10/26	Y	A
M01D004701	Personal air monitoring	GWTP Oper.	10/13	10/14	Y	A
M01D004702	Personal air monitoring	Rochem Oper.	10/13	10/14	Y	A
M01D004703	Personal air monitoring	Well Oper.	10/13	10/14	Y	A
M03A027601	Treated water discharge	CF Out	10/03	10/05	Y	A
M03A027701	Treated water discharge	CF Out	10/06	10/07	Y	A
M03A027801	Treated water discharge	CF Out	10/10	10/12	Y	A
M03A027901	Treated water discharge	CF Out	10/13	10/14	Y	A
M06C002001	Process water monitoring	T-101 Eff	10/04	10/05	Y	A
M06C002002	Process water monitoring	T-101 Inf-1	10/04	10/05	Y	A
M06C002003	Process water monitoring	T-101 Inf-2	10/04	10/05	Y	A
M06C002004	Process water monitoring	R1	10/04	10/05	Y	A
M06C002005	Process water monitoring	R2	10/04	10/05	Y	A
M06C002006	Process water monitoring	Rochem Prod.	10/04	10/05	Y	A
M08C000801	Riverdale residential wells	(b) (6)	10/07	10/08	Y	N
M08D001001	Riverdale residential wells	(b) (6)	10/07	10/08	Y	A

TABLE 7-1

Samples Collected - October, 1994

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M08D001101	Riverdale residential wells	RD-3	10/13	10/14	Y	A
M08D001102	Riverdale residential wells	RD-4	10/13	10/14	Y	A
M08D001103	Riverdale residential wells	RD-5	10/13	10/14	Y	A
M08D001104	Riverdale residential wells	RD-6	10/13	10/14	Y	A
S12B000901	Cell D monitoring	Cell D Liq	10/06	10/07	Y	A
S14C000301	Ambient nutrient monitoring	FLTG3-Pot	10/07	10/08	Y	A
S14C000302	Ambient nutrient monitoring	INT-204	10/07	10/08	Y	A
S14C000401	Ambient nutrient monitoring	East PotWell	10/11	10/12	Y	A
S14C000402	Ambient nutrient monitoring	INT-204	10/11	10/12	Y	A
S14D000401	Elevated D.O. wells	S1-101	10/03	10/05	Y	A
S14D000402	Elevated D.O. wells	INT-132	10/03	10/05	Y	A
S14D000501	Elevated D.O. wells	INT-101	10/04	10/05	Y	A
S14D000502	Elevated D.O. wells	REI-10-2	10/04	10/05	Y	A
S14D000601	Elevated D.O. wells	FLTG-011	10/05	10/07	Y	A
S14D000602	Elevated D.O. wells	INT-113	10/05	10/07	Y	A
S14D000603	Elevated D.O. wells	REI-10-3	10/05	10/07	Y	A
S14D000604	Elevated D.O. wells	W-3	10/05	10/07	Y	A
S14D000605	Elevated D.O. wells	FLTG-012	10/05	10/07	Y	A
S14D000606	Elevated D.O. wells	W-5	10/05	10/07	Y	A
S14D000607	Elevated D.O. wells	P-5	10/05	10/07	Y	A
S14D000608	Elevated D.O. wells	W-4	10/05	10/07	Y	A
S14D000701	Elevated D.O. wells	INT-102	10/02	10/05	Y	A
S14D000702	Elevated D.O. wells	INT-106	10/02	10/05	Y	A
S14D000703	Elevated D.O. wells	S1-107	10/02	10/05	Y	A

TABLE 7-1

Samples Collected - October, 1994

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
S14D000704	Elevated D.O. wells	INT-112	10/02	10/05	Y	A
S14D000801	Elevated D.O. wells	INT-103	10/06	10/07	Y	A
S14D000802	Elevated D.O. wells	S1-111	10/06	10/07	Y	A
S14D000803	Elevated D.O. wells	INT-060-P-4	10/06	10/07	Y	A
S14D000804	Elevated D.O. wells	INT-060-P-1	10/06	10/07	Y	A
S14D000805	Elevated D.O. wells	FLTG-9	10/06	10/07	Y	A
S14D000806	Elevated D.O. wells	S1-105	10/06	10/07	Y	A
S14D000901	Elevated D.O. wells	FLTG-10	10/06	10/07	Y	A
S14D000902	Elevated D.O. wells	FLTG-13	10/06	10/07	Y	A
S14D000903	Elevated D.O. wells	FLTG-14	10/06	10/07	Y	A
S14D000904	Elevated D.O. wells	S1-102	10/06	10/07	Y	A
S14D000905	Elevated D.O. wells	INT-059-P-4	10/06	10/07	Y	A
S14D000906	Elevated D.O. wells	INT-059-P-1	10/06	10/07	Y	A
S14L002301	Bounceback monitoring	S1-032	10/11	10/12	Y	A

TABLE 7-2

Scheduled Sampling Events
October, 1994

Date Sampled	Set Number	Description	Schedule
10/07/94	S14C0003	Ambient nutrient in GW	Special
10/11/94	S14C0004	Ambient nutrient in GW	Special
10/11/94	S14L0023	Bounceback monitoring	Special
10/06/94	S12B0009	Cell D monitoring	Special
10/03/94	S14D0004	Elevated D.O. wells	Special
10/04/94	S14D0005	Elevated D.O. wells	Special
10/05/94	S14D0006	Elevated D.O. wells	Special
10/02/94	S14D0007	Elevated D.O. wells	Special
10/06/94	S14D0008	Elevated D.O. wells	Special
10/06/94	S14D0009	Elevated D.O. wells	Special
10/13/94	M01D0047	Personal air monitoring	Monthly
10/04/94	M06C0020	Process water monitoring	Monthly
10/07/94	M08C0008	Riverdale resident wells	Monthly
10/07/94	M08D0010	Riverdale resident wells	Monthly
10/13/94	M08D0011	Riverdale resident wells	Monthly
10/03/94	M03A0276	Treated water discharge	Bi-weekly
10/06/94	M03A0277	Treated water discharge	Bi-weekly
10/10/94	M03A0278	Treated water discharge	Bi-weekly
10/13/94	M03A0279	Treated water discharge	Bi-weekly

TABLE 7-3

Treated Water
QC Failure Summary

Sample Date	Test	QC Failure	Explanation	Corrective Action
09-12-94	SV	MS Recov.	MS recovery for Naphthalene was outside QC limits on both the MS and MSD.	None required - matrix effect indicated. LCS recovery and RPD were within control limits.
09-12-94	SV	SU Recov.	SU Phenol-d5 recovery was outside QC limits on sample -01 MS.	None required - one B/N and/or one acid SU failure is allowable.
09-15-94	SV	SU Recov.	SU Phenol-d5 recovery was outside QC limits on sample -01 MS.	None required - one B/N and/or one acid SU failure is allowable.
09-19-94	SV	MS Recov.	MS recovery for Naphthalene was outside QC limits on both the MS and MSD.	None required - matrix effect indicated. LCS recovery and RPD were within control limits.
09-19-94	PCB	SU Recov.	SU TCX recovery on column 2 was outside QC limits on sample -01 MS.	None required - SU TCX recovery for column 1 was within QC limits.
09-22-94	PCB	SU Recov.	SU TCX recovery on column 2 was outside QC limits on the blank associated with this sample.	None required - SU TCX recovery for column 1 was within QC limits.
09-22-94	Mn	ICP Serial Dilution	ICP serial dilution indicated interference.	None required - LCS recovery, matrix spike and duplicate were within QC limits.
09-26-94	PCB	SU Recov.	SU DCB recovery on column 1 was outside QC limits on sample -01 MSD.	None required - SU TCX recovery for column 2 was within QC limits.
09-29-94	SV	MS Recov.	MS recovery for Naphthalene was outside QC limits on both the MS and MSD.	None required - matrix effect indicated. LCS recovery and RPD were within control limits.
09-29-94	Ag	MS Recov.	Matrix spike recovery was outside QC limits for this sample.	None required - LCS recovery was within QC limits.
10-03-94	SV	SU Recov.	SU Phenol-d5 and Nitrobenzene-d5 recovery was outside QC limits on sample -01, -01 MS and MSD.	None required - one B/N and/or one acid SU failure is allowable.
10-03-94	Ag	MS Recov.	Matrix spike recovery was outside QC limits for this sample.	None required - LCS recovery was within QC limits.
10-03-94	SV	MS Recov.	MS recovery for Naphthalene was outside QC limits on both the MS and MSD.	None required - matrix effect indicated. LCS recovery and RPD were within control limits.
10-06-94	SV	SU Recov.	SU Phenol-d5 recovery was outside QC limits on sample -01.	None required - one B/N and/or one acid SU failure is allowable.
10-10-94	Ag	MS Recov.	Matrix spike recovery was outside QC limits for this sample.	None required - LCS recovery was within QC limits.
10-10-94	SV	MS Recov.	MS recovery for Naphthalene was outside QC limits on both the MS and MSD.	None required - matrix effect indicated. LCS recovery and RPD were within control limits.
10-13-94	Ba	ICP Serial Dilution	ICP serial dilution indicated interference.	None required - LCS recovery, matrix spike and duplicate were within QC limits.
10-13-94	Ag & Ni	MS Recov.	Matrix spike recovery was outside QC limits for this sample.	None required - LCS recovery was within QC limits.

7.2.3 Completeness Summaries

Tables 7-4 through 7-8 summarize completeness values for VOA, SVA, PCBs, Metals and miscellaneous parameters on treated water samples.

VOA (Table 7-4)

A total of 10 VOA sample sets have been validated with all categories meeting Project Completeness Goals.

SVA (Table 7-5)

A total of 10 SVA sample sets have been validated for this time period. All categories meet or exceed Project Completeness Goals with the exception of sample matrix effect. This is due to matrix effect failures in the early stages of the project and the MS/MSD accuracy failures occurring recently

PCBs (Table 7-6)

A total of 10 PCB sample sets have been validated for this time period with all samples, meeting data quality objectives. All categories meet or exceed Project Completeness Goals.

Metals (Table 7-7)

A total of 10 sample sets have been validated for this time period. Project Completeness Goals are met or exceeded in all categories.

Miscellaneous Parameters (Table 7-8)

A total of 10 sample sets have been validated for this time period. Project completeness goals are met or exceeded in all categories.

TABLE 7-4

Completeness Summary
M03A Treated Water
Volatile Organics Analyses

SAMPLE DATE SET NUMBER	M03A0270 through M03A0279	Project to Date	PROJECT GOAL
Analysis Holding Time	100	100	100
12 Hour Window	100	100	100
SU Check	100	93	90
SU1 (d4-1,2-DCE)	100	97	90
SU2 (d8-Toluene)	100	97	90
SU3 (4-BFB)	100	99	90
IS Check	100	100	90
IS1 (BrClMethane)	100	100	90
IS2 (1,4-DiFlBenzene)	100	100	90
IS3(d5-ClBenzene)	100	100	90
Sample RT/RRT Check	100	*	
Vinyl Chloride			
Accuracy	100	99	90
Precision	100	99	90
Benzene			
Accuracy	100	99	90
Precision	100	100	90
No Group Matrix Effect	100	*	90
No Sample Matrix Effect	100	*	90
Tune Check	100	*	
Overall ICAL Check	100	*	
Overall CCAL Check	100	*	
Overall Lab Blank Check	100	*	

* - Level II QC checks were performed on 10% of samples prior to 6/14/93.
PTD completeness values do not apply to these checks.

TABLE 7-5

Completeness Summary
M03A Treated Water
Semivolatile Organic Analyses

SAMPLE DATE SET NUMBER	M03A0270 through M03A0279	Project to Date	PROJECT GOAL
Extract Holding Time	100	100	100
Analysis Holding Time	100	100	100
12 Hour Window	100	100	100
SU Check	**100**	**95**	**90**
SU1 (2-FlPhenol)	100	95	90
SU2 (d5-Phenol)	70	92	90
SU3 (d5-Nitrobenz)	90	96	90
SU4(2-FlBiphenyl)	100	97	90
SU5(2,4,6-TBPh)	100	93	90
SU6(d14-Terphen)	100	95	90
IS Check	**100**	**95**	**90**
IS1 (d4-1,4-DiClBenz)	100	100	90
IS2 (d8-Naph)	100	100	90
IS3 (d10-Acenaph)	100	100	90
IS4 (d10-Phenanth)	100	100	90
IS5 (d12-Chrysene)	100	97	90
IS6 (d12-Perylene)	100	95	90
Sample RT/RRT	100	*	*
Napthalene			
Accuracy	0	95	90
Precision	100	99	90
No Group Matrix Effect	100	100	90
No Sample Matrix Effect	0	88	90
Tune Check	100	*	*
Overall ICAL Check	100	*	*
Overall CCAL Check	100	*	*
Overall Lab Blank Check	100	*	*

* - Level II QC checks were performed on 10% of samples prior to 6/14/93.
PTD completeness values do not apply to these checks.

TABLE 7-6

Completeness Summary
M03A Treated Water
PCB Analyses

SAMPLE DATE SET NUMBER	M03A0270 through M03A0279	Project to Date	PROJECT GOAL
Extract Holding Time	100	100	100
Analysis Holding Time	100	100	100
12 Hour Window	100	100	100
SU Check - Column A	100	99	90
SU1 (DCBP)	90	82	NS
SU2 (TCMX)	100	97	NS
SU Check - Column B	100	97	90
SU1 (DCBP)	100	83	NS
SU2 (TCMX)	80	97	NS
SU Check - Column A or B	100	98	90
Aroclor 1242			
Accuracy	100	99	90
Precision	100	97	90
Overall ICAL Check	100	*	
Overall 1st CCAL Check	100	*	
Overall 2nd CCAL Check	100	*	
Overall Lab Blank Check	100	*	

* - Level II QC checks were performed on 10% of samples prior to 6/14/93.
PTD completeness values do not apply to these checks.

TABLE 7-7

Completeness Summary
M03A Treated Water
Metals Analyses

SAMPLE DATE SET NUMBER	M03A0270 through M03A0279	PROJECT GOAL
ANALYTE: BARIUM		
MS Accuracy	1000	95
DUP Precision/Difference	100	95
No Matrix Interference*	90	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: CADMIUM		
MS Accuracy	100	95
DUP Precision/Difference	W	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: CHROMIUM		
MS Accuracy	100	95
DUP Precision/Difference	W	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: COPPER		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: LEAD		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

W - All samples waived due to low response

* Matrix interference is indicated by:
Furnace analyses - failure of analytical spike or low MSA coefficient
ICP analyses - failure of serial dilution

TABLE 7-7 (Continued)

Completeness Summary
M03A Treated Water
Metals Analyses

SAMPLE DATE SET NUMBER	M03A0270 through M03A0279	PROJECT GOAL
ANALYTE: MANGANESE		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	90	NA
Prep Blank Check	NA	100
Lab Control Spike Check	100	100
ANALYTE: NICKEL		
MS Accuracy	90	95
DUP Precision/Difference	W	95
No Matrix Interference*	90	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: SILVER		
MS Accuracy	60	95
DUP Precision/Difference	W	95
No Matrix Interference*	60	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: ZINC		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	NA	100
Lab Control Spike Check	100	100
ANALYTE: MERCURY		
MS Accuracy	100	95
DUP Precision/Difference	W	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

W - *All samples waived due to low response*

* Matrix interference is indicated by:
Furnace analyses - failure of analytical spike or low MSA coefficient
ICP analyses - failure of serial dilution

TABLE 7-7 (Continued)

Completeness Summary
M03A Treated Water
Metals Analyses

SAMPLE DATE SET NUMBER	M03A0270 through M03A0279	PROJECT GOAL
ANALYTE:ARSENIC		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: SELENIUM		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

W - All samples waived due to low response

* Matrix interference is indicated by:
Furnace analyses - failure of analytical spike or low MSA coefficient
ICP analyses - failure of serial dilution

TABLE 7-8

Completeness Summary
M03A Treated Water
Miscellaneous Parameters Analyses

SAMPLE DATE SET NUMBER	M03A0270 through M03A0279	Project to Date	PROJECT GOAL
PARAMETER: TOC			
Analysis Hold Time	100	100	100
MS Accuracy	100	100	NA
DUP Precision	100	100	NA
PARAMETER: OILS			
Analysis Hold Time	100	100	100
MS Accuracy	100	100	NA
DUP Precision	100	100	NA
PARAMETER: TSS			
Analysis Hold Time	100	100	100
MS Accuracy	NA	NA	NA
DUP Precision	100	100	NA

8.0 SITE MAINTENANCE

8.1 Summary of Activities

8.1.1 General Housekeeping

The site safety and housekeeping inspections and responses kept grounds safe and attractive for employees and visitors. The site was closed to visitors due to high water and hazards from October 17, to October 24, 1994. Clean-up efforts are continuing through the month.

8.1.2 Purchasing

All purchases were covered by written requisitions and purchase orders. Purchase of chemicals is now reduced to groundwater treatment and insitu remediation.

A contract was awarded to Hodges General Contracting for office and warehouse rehabilitation. Special rates were accepted from W&W Electrical Contracting for electrical rehabilitation.

8.1.3 Equipment Maintenance

Routine preventive and production maintenance was performed on all equipment. Emergency repairs were conducted on potable wells and booster pumps to enable crews to start clean-up.

Scheduled repairs were conducted on all submerged motors, pumps, blowers, controls, and electrical. These are on-going at this time.

8.2 Visitors

The following visitors were recorded at the site during October:

October 4:	Doug Lee, MIP
October 5:	Jerry Woodard, Woodard Equipment Stephen Daniel, Smith
October 7:	Eugene Stevenson, Citgo Dave Scott, Citgo Dave Green, Citgo Phil Meadors, LAN Mary Wright, LAN Rose Churchill, TNRCC Barbara Ferguson, TNRCC Tom Davis, LAN Mike Gust, IT Davy
October 9:	Alan J. Atkinson, Brandon Overseas
October 10:	W.A. Pegler, Rochem Warren Franz, ARGO Stet Hrabar, Gems2 John Santarcayelo, FMS
October 12:	(b) (6) photographer (b) (6) photographer
October 13:	(b) (6) B-School (b) (6) B-School (b) (6) B-School (b) (6) B-School Mike Crouch, Terra Consulting Corp. Lindsay Nakashman, Terra Consulting Corp.

8.3 Emergency Equipment

8.3.1 Flood Gate Test

The exclusion wall gate was exercised on the morning of shut-down, October 17, 1994. The gate was closed at 2300 hours for the duration of the flood event.

8.3.2 P-8 Auxiliary Pump

P-8 Auxiliary Pump was pulled and serviced after the flood on October 27, 1994.

8.3.3 Fire Extinguishers

All fire extinguishers were inspected and certified immediately after the water receded.

8.4 Security

Smith Security provides 24-hour security at the FLTG site, including the south side of Gulf Pump Road; all site areas are checked hourly. Incidents reported by Security in October:

> Numerous unrecorded news reporters and Riverdale residents requested transportation to the flooded subdivision. FLTG accommodated as many as possible under severe conditions.

8.5 Operator Training

All training is documented and records are maintained on site. Semi-annual physicals are scheduled for November and December.

8.6 Data Management

Data base is fully operational. Data is entered on an as-needed basis from the Crosby Motel.

8.7 Personnel Monitoring

Results of personnel monitoring conducted during October are included in Table 8-1.

8.8 OVM System

The meteorological station was destroyed during the flood event. A new system is being competitively bid at this time.

Work areas are being monitored daily with Organic Vapor Monitor 580A.

8.9 Repository

Records from the October review are listed in Attachment 8A.

TABLE 8-1

On-Site Employee Contaminant Limits
(From OSHA 29 CFR 1910 Subpart Z)

Compound	PEL 8 hour PPM	M01D0047 13-Oct-94 GWT Operator % of PEL	GWT Operator PPM	M01D0047 13-Oct-94 Rochem Oper. % of PEL	Rochem Oper. PPM	M01D0047 13-Oct-94 Well Operator % of PEL	Well Operator PPM
Chloromethane	50	0.000	0.000	0.000	0.000	0.003	0.002
Bromomethane	5	0.013	0.001	0.015	0.001	0.007	0.000
Vinyl chloride	1	0.000	0.000	0.000	0.000	0.000	0.000
Chloroethane	1000	0.000	0.000	0.000	0.000	0.000	0.000
Dichloromethane	50	0.002	0.001	0.003	0.001	0.000	0.000
Acetone	750	0.002	0.016	0.002	0.013	0.002	0.012
Carbon disulfide	10	0.005	0.001	0.000	0.000	0.005	0.000
1,1-Dichloroethene	5	0.007	0.000	0.005	0.000	0.000	0.000
1,1-Dichloroethane	100	0.001	0.001	0.000	0.000	0.001	0.001
trans-1,2-Dichloroethe	200	0.001	0.003	0.001	0.002	0.001	0.002
Chloroform	10	0.026	0.003	0.000	0.000	0.013	0.001
1,2-Dichloroethane	10	0.005	0.001	0.000	0.000	0.003	0.000
2-Butanone	200	0.002	0.004	0.024	0.048	0.001	0.002
1,1,1-Trichloroethane	350	0.000	0.001	0.000	0.001	0.000	0.001
Carbon Tetrachloride	5	0.008	0.000	0.004	0.000	0.012	0.001
Vinyl acetate	10	0.000	0.000	0.000	0.000	0.000	0.000
Bromodichloromethane			0.000		0.000		0.000
1,2-Dichloropropane	75	0.000	0.000	0.000	0.000	0.000	0.000
cis-1,3-Dichloropropen	1	0.000	0.000	0.000	0.000	0.000	0.000
Trichloroethene	50	0.001	0.000	0.000	0.000	0.001	0.000
Dibromochloromethane			0.000		0.000		0.000
1,1,2-Trichloroethane	10	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	1	0.076	0.001	0.072	0.001	0.126	0.001
trans-1,3-Dichloroprop	1	0.000	0.000	0.000	0.000	0.000	0.000
2-Chloroethylvinyl ether			0.001		0.000		0.002
Bromoform	0.5	0.000	0.000	0.000	0.000	0.000	0.000
4-Methyl-2-pentanone	50	0.000	0.000	0.000	0.000	0.000	0.000
2-Hexanone	5	0.000	0.000	0.000	0.000	0.000	0.000
Tetrachloroethene	50	0.001	0.000	0.000	0.000	0.002	0.001
1,1,2,2-Tetrachloroet	1	0.000	0.000	0.000	0.000	0.000	0.000
Toluene	100	0.001	0.001	0.001	0.001	0.002	0.002
Chlorobenzene	10	0.000	0.000	0.000	0.000	0.000	0.000
Ethylbenzene	100	0.001	0.001	0.000	0.000	0.001	0.001
Styrene	50	0.000	0.000	0.000	0.000	0.000	0.000
Xylene (total)	100	0.000	0.000	0.000	0.000	0.001	0.001
Hexane			0.003		0.002		0.002

ATTACHMENT 8A

Repository Status Report: October, 1994

REPOSITORY STATUS REPORT: October, 1994

At the Rice University Library...

1. Remedial Investigation Report April, 1985
2. Remedial Investigation Report Appendices, Volume II, April, 1985
3. Remedial Investigation Report June, 1986 (Updated from April, 1985)
4. Remedial Investigation Report Appendices, Volume I, February, 1986 (Revised June, 86)
5. Remedial Investigation Report Appendices, Volume II, February, 1986 (Revised June, 1986)
6. Remedial Investigation Report Appendices, Volume III, February, 1986
7. 1986 Field Investigation and Supplemental Remedial Investigation Report Volume I, December, 1986
8. 1986 Field Investigation and Supplemental Remedial Investigation Report French Limited Site Volume II, Appendices December, 1986
9. 1986 Field Investigation Hydrology Report, December 19, 1986
10. Endangerment Assessment Report February, 1987
11. Endangerment Assessment Report April 1987 (Updated from February, 1987)
12. Feasibility Study Report, March 1987
13. In Situ Biodegradation Demonstration Report Volume I Executive Summary, October 30, 1987 Revised 11-11-87
14. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume I, November 30, 1987
15. In Situ Biodegradation Demonstration Report Volume II, October 30, 1987 (Revised February 1, 1988 at Site only)
16. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume II, November 30, 1987 + Appendices

17. In Situ Biodegradation Demonstration Report Volume III Appendices, October 30, 1987

18. In Situ Biodegradation Demonstration Report Volume III, Appendices, Supplemental Report, November 30, 1987

19. In Situ Biodegradation Demonstration Report French Limited Site, Volume IV October 30, 1987 + Appendices

20. In Situ Biodegradation Demonstration Supplemental Report French Limited Site, Volume IV November 30, 1987 + Appendices

21. In Situ Biodegradation Demonstration Report French Limited Site Volume V, October 30, 1987

22. In Situ Biodegradation Demonstration Report French Limited Site Volume V Appendices, November 30, 1987 - Supplemental Report

23. In Situ Biodegradation Demonstration Report French Limited Site Volume VI Appendices, October 30, 1987

24. In Situ Biodegradation Demonstration Report French Limited Site Volume VII Appendices, October 30, 1987

25. In Situ Biodegradation Demonstration Report French Limited Site Volume VIII Appendices, October 30, 1987

26. In Situ Biodegradation Demonstration Report French Limited Site Volume IX Appendices, October 30, 1987

27. In Situ Biodegradation Demonstration Report French Limited Site Volume X Appendices, October 30, 1987

28. In Situ Biodegradation Demonstration Report French Limited Site Volume XI Appendices, October 30, 1987

29. In Situ Biodegradation Demonstration Report French Limited Site Volume XII Appendices, October 30, 1987

30. In Situ Biodegradation Demonstration Report French Limited Site Volume XIII Appendices, October 30, 1987
This volume is missing.

31. In Situ Biodegradation Demonstration Report French Limited Site Volume XIV Appendices, October 30, 1987

32. In Situ Biodegradation Demonstration Report French Limited Site Volume XV Appendices, October 30, 1987

33. In Situ Biodegradation Demonstration Report French Limited Site Volume XVI Appendices, October 30, 1987

34. In Situ Biodegradation Demonstration Report French Limited Site Volume XVII Appendices, October 30, 1987

35. In Situ Biodegradation Demonstration Report French Limited Site Volume XVIII Appendices, October 30, 1987

36. Proposed In Situ Biodegradation Demonstration French Limited Site Phase III, April, 1987

37. In Situ Bioremediation Demonstration French Limited April, 1987 Monthly Report, Equipment Evaluation Phase IV

38. In Situ Bioremediation Demonstration French Limited May, 1987 Monthly Report, Equipment Evaluation Phase IV

39. In Situ Bioremediation Demonstration French Limited June, 1987 Monthly Report, Equipment Evaluation Phase IV

40. In Situ Bioremediation Demonstration French Limited July, 1987 Monthly Report, Equipment Evaluation Phase IV

41. In Situ Bioremediation Demonstration French Limited August, 1987 Monthly Report, Equipment Evaluation Phase IV

42. In Situ Bioremediation Demonstration French Limited November, 1987 Monthly Report, Equipment Evaluation Phase IV

43. In Situ Bioremediation Demonstration French Limited December, 1987 Monthly Report, Equipment Evaluation Phase IV

44. In Situ Bioremediation Demonstration French Limited January, 1988 Monthly Report, Equipment Evaluation Phase IV

45. In Situ Bioremediation Demonstration French Limited February, 1988 Monthly Report, Equipment Evaluation Phase IV

46. In Situ Bioremediation Demonstration French Limited March, 1988 Monthly Report, Equipment Evaluation Phase IV

47. In Situ Bioremediation Demonstration French Limited April, 1988 Monthly Report, Equipment Evaluation Phase IV

48. In Situ Biodegradation Demonstration French Limited May/June 1988 Monthly Report, Equipment Evaluation Phase IV

49. In Situ Bioremediation Demonstration French Limited July, 1988 Monthly Report, Equipment Evaluation Phase IV

50. In Situ Bioremediation Demonstration French Limited August, 1988 Monthly Report, Equipment Evaluation Phase IV

51. In Situ Bioremediation Demonstration French Limited September, 1988 Monthly Report, Equipment Evaluation Phase IV

52. Supplemental Biodegradation Equipment Evaluation French Limited Site - Phase IV, September 26, 1988

53. In Situ Biodegradation Demonstration Phase III Quality Assurance Project Plan for French Limited Site, March, 1987

54. Addendum to Quality Assurance Project Plan for the French Limited Site In Situ Biodegradation Demonstration Phase III, February 16, 1990

55. Site Safety and Health Plan French Limited Site - Phase III, April 1987 (Revision 2)

56. Remedial Action Plan Volume I - April, 1990

57. Remedial Action Plan Volume I - September, 1990 (Updated from April, 1990)

58. Remedial Action Plan Volume II Quality Assurance April, 1990

59. Remedial Action Plan Volume II Quality Assurance September, 1990 (Updated from April 1990) Revised June 3, 1991

60. Remedial Action Plan Volume II Quality Assurance June, 1990 Appendix A - Quality Assurance Sampling Procedures and Appendix B - Analytical Methods - B.1 - B.53, September 22, 1989 Revised September 28, 1990

61. Remedial Action Plan Volume III - Health and Safety, July 20, 1990

62. Remedial Action Plan Volume IV - Spill and Volatile Organic Release Contingency Plan (April 6, 1990)

63. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, May, 1990
Page v.i.3 Missing

64. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, July 20, 1990, (Updated from May, 1990)

65. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume I, February 1,1990

66. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume II, February 1, 1990

67. 1988 Slough Investigation Report French Limited Site, October 1988

68. Ambient Air Impact Risk Assessment Report, May 5, 1989

69. Workplan for the Shallow Aquifer Pumping Tests for the French Limited Site, July 22, 1988
Page 80 Missing

70. French Limited Site Hurricane Gilbert Preparation Report, October, 1988

71. Potable Water Well Installation Report French Limited Site, December 7, 1988

72. Bioresidue Fixation Alternatives Evaluation Report French Limited Site March 20, 1989

73. Hydrogeologic Characterization Report, March 1989

74. Hydrogeologic Characterization Report - Appendices, March 1989

75. San Jacinto River May 19, 1989 Flood Event Report, June 1989

76. Post San Jacinto River May 1989 Flood Event Soils and Water Analysis Program - Volume I, August 16, 1989

77. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume II Appendix A

78. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume III Appendix A, August 16, 1989

79. Riverdale Lake Area Remediation Program August 15, 1989

80. Flood and Migration Control Wall Design Report, August 16, 1989

81. Flood and Migration Control Wall Design Report Appendix C Access Way Design, September, 1989

82. North Pit Remediation Report French Limited Site, November 6, 1989

83. Installation Report for Flood and Migration Control Wall, January 8, 1990

84. Installation Report for Flood and Migration Control Wall
Appendix A - ENSR Site Logs

85. Installation Report for Flood and Migration Control Wall
Appendix B - Inspection Reports

86. Installation Report for Flood and Migration Control Wall Appendix C - Pile Driving Inspection Report January 8, 1990

87. Flood Wall Gate Test Report French Limited Site, February 1990

88. French Limited Remediation Design Report - Executive Summary Bioremediation/Shallow Aquifer, July, 1991

89. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume I of III - Summary Report and Appendices A-H, July 1991

90. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume II of III - Appendices I-M, June 1991

91. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume III of III - Appendices N-P, June 1991

92. Bioremediation Facilities Design Report Volume II of IV Appendices, Reports and Calculations (March 20, 1991)

93. Bioremediation Facilities Design Report Volume III of IV
Appendix E - Design Specifications (March 20, 1991)

94. Bioremediation Facilities Design Report Volume IV of IV - Air Monitoring, March 20, 1991

95. Public Health Assessment for French Limited March 30, 1993 from U.S. Department of Health and Human Services

96. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 1, Report, Appendices A-E

97. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 2, Appendix F

98. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 3, Appendix F continued

99. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 4, Appendix G

100. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 5, Appendix H

101. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 6, Appendix H continued

102. Record of Public Meeting Regarding Remedial Investigation and Feasibility Study (5-21-87)

103. Summary of Remedial Alternative Selection 1988

104. Declaration for the Record of Decision 1988

105. Record of Public Meeting Regarding Remedial Investigation and Feasibility Study (2-11-88) (Updated from June 21, 1987)

106. Consent Decree between the Federal Government and the FLTG

107. French Limited Superfund Site Community Relations Revised Plan August, 1989 - Jacob's Engineering

108. Results of the French Limited Task Group Survey (Goldman and Company) April, 1987

109. Goldman Public Relations Clipping Report

110. BioGEE International, Inc., Project Report Biotreatability Study Using Isolated Indigenous Organisms, April, 1994

111. Field Evaluation of Biodegradation at the French Limited Site (Phase II) Volume I

112. Laboratory Evaluation of Biodegradation at the French Limited Site

113. French Limited Site Focused Feasibility Study (May 1987)

114. Monthly Progress Report, January 1992

115. Monthly Progress Report, January, 1992 Appendices A-C

116. Monthly Progress Report, January, 1992 Appendices E, F

117. Monthly Progress Report, January, 1992 Appendices G

118. Monthly Progress Report, February, 1992

119. Monthly Progress Report, February, 1992 Appendices A-B

120. Monthly Progress Report, February, 1992 Appendices C 1, C 2

121. Monthly Progress Report, February, 1992 Appendices D-E

122. Monthly Progress Report, March, 1992

123. Monthly Progress Report, March, 1992, Appendix A

124. Monthly Progress Report, April, 1992

125. Monthly Progress Report, April, 1992, Appendices A-B

126. Monthly Progress Report, May, 1992

127. Monthly Progress Report, May, 1992, Appendices A-B

128. Monthly Progress Report, June, 1992

129. Monthly Progress Report, June, 1992, Appendices A-B

130. Monthly Progress Report, July 1992

131. Monthly Progress Report, July 1992, Appendices A-B

132. Monthly Progress Report, July 1992, Appendices B1-B22 Vol. 1 of 3

133. Monthly Progress Report, July 1992, Appendices B1-B22 Vol. 2 of 3

134. Monthly Progress Report, July 1992, Appendices B1-B22 Vol. 3 of 3

135. Monthly Progress Report, August, 1992

136. Monthly Progress Report, August, 1992, Appendices A-B

137. *Monthly Progress Report, September, 1992*

138. Monthly Progress Report, September, 1992, Appendices A-B

139. Monthly Progress Report, October, 1992

140. Monthly Progress Report, October, 1992, Appendices A-B

141. Monthly Progress Report, November, 1992

142. Monthly Progress Report, November, 1992 Appendices A-B

143. Monthly Progress Report, December, 1992

144. Monthly Progress Report, December, 1992 Appendices A, B

145. Monthly Progress Report, January, 1993

146. Monthly Progress Report, February, 1993

147. Monthly Progress Report, March, 1993

148. Monthly Progress Report, April, 1993

149. Monthly Progress Report, May, 1993

150. Monthly Progress Report, June, 1993

151. Monthly Progress Report, July, 1993

152. Monthly Progress Report, August, 1993

153. Monthly Progress Report, September, 1993

154. Monthly Progress Report, October, 1993

155. Monthly Progress Report, November, 1993

156. Monthly Progress Report, December, 1993

157. Monthly Progress Report, January, 1994

158. Monthly Progress Report, February, 1994

159. Monthly Progress Report, March, 1994

160. Monthly Progress Report, April, 1994

161. Monthly Progress Report, May, 1994

162. Monthly Progress Report, June, 1994

163. Monthly Progress Report, July, 1994

164. Monthly Progress Report, August, 1994

165. Monthly Progress Report, September, 1994

At the Crosby library...

1. Remedial Investigation Report - June, 1986

2. Remedial Investigation Appendices Volume I June, 1986 Revised from Feb. 1986

3. Remedial Investigation Appendices Volume I I June, 1986 Revised from Feb. 1986

4. Remedial Investigation Appendices Volume III February, 1986
   Pages 1 and 2 of 10 Res. Engr Tab Missing
   Analytical Report Worksheet 7-8-9-10 Missing
   Pages 1 and 2 of 6 Missing
   Tab 9 H 1-8 Missing, H 11-19 Missing, Page 1 of 10 Missing
   Page 3 Worksheet Missing
   Tab 10 H 1-3 Missing, Page 3-6 of 6 Missing, Page 1-6 Missing
   Tab 12 Page 2-10 of 10 Missing

5. 1986 Field Investigation and Supplemental Remedial Investigation Report Volume I, December, 1986

6. 1986 Field Investigation and Supplemental Remedial Investigation Report Volume II, Appendices, December 1986

7. 1986 Field Investigation Hydrology Report, December 19, 1986

8. Feasibility Study Report, March 1987

9. Feasibility Study Report, March 1987

10. French Limited Site Focused Feasibility Study, May 1987

11. Endangerment Assessment Report February 1987

12. Endangerment Assessment Report April 1987

13. Endangerment Assessment Report April 1987

14. In Situ Biodegradation Demonstration Report Volume I Executive Summary October, 1987 (Revised 12-15-87)

15. In Situ Biodegradation Demonstration Report Volume II October 30, 1987

16. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume I, November 30, 1987
    Missing Supplements to 5-6 and 7 to 10

17. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume II, November 30, 1987 + Appendices

18. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume III, November 30, 1987 + Appendices

19. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume IV, November 30, 1987 -Appendices

20. In Situ Biodegradation Demonstration Supplemental Report French Limited Site Volume V - Appendices, November 30, 1987

21. Results of the French Limited Task Group Survey (Goldman and Company) April 1987

22. Goldman Public Relations Clipping Report

23. Consent Decree between the Federal Government and the FLTG

24. Consent Decree between the Federal Government and the FLTG

25. Laboratory Evaluation of Biodegradation at the French Limited Site, December 1986.

26. Field Evaluation of Biodegradation at the French Limited Site (Phase II) Volume I, March, 1987

27. Bioremediation Facilities Design Report Volume II of IV Appendices, Reports and Calculations March 20, 1991

28. Bioremediation Facilities Design Report Volume III of IV Appendix E - Design Specifications March 20, 1991

29. Bioremediation Facilities Design Report Volume IV of IV Air Monitoring, March 20, 1991

30. Remedial Action Plan Volume I, September 28, 1990

31. Remedial Action Plan Volume II - Quality Assurance, Revised June 3, 1991

32. Remedial Action Plan Volume II - Appendix A - Quality Assurance Sampling Procedures and Appendix B - Analytical Methods - B.1 - B.53, September 28, 1990

33. Remedial Action Plan Volume III - Health and Safety, July 20, 1990

34. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, July 20, 1990

35. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, July 20, 1990

36. Hydrogeologic Characterization Report, March 1989

37. Hydrogeologic Characterization Report Appendices, March 1989

38. Supplemental Biodegradation Equipment Evaluation French Limited Site - Phase IV, September 26, 1988

39. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume I, February 1, 1990

40. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume II, February 1, 1990

41. Site Safety and Health Plan French Limited Site - Phase III, April 1987 (Revision 2)

42. San Jacinto River May 19, 1989 Flood Event Report, June 1989

43. Post San Jacinto River May 1989 Flood Event Soils and Water Analysis Program Volume I, August 16, 1989

44. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume II, Appendix A

45. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume III, Appendix A, August 16, 1989

46. 1988 Slough Investigation Report French Limited Site, October 1988

47. Flood and Migration Control Wall Design Report, August 16, 1989

48. Flood and Migration Control Wall Design Report (Flood is spelled incorrectly on Volume Cover) + Appendix C - Access way Design September 1989

49. Installation Report for Flood and Migration Control Wall January 8, 1990

50. Installation Report for Flood and Migration Control Wall
Appendix A - ENSR Site Logs

51. Installation Report for Flood and Migration Control Wall
Appendix B - Inspection Reports

52. Installation Report for Flood and Migration Control Wall
Appendix C - Pile Driving Inspection Report January 8, 1990

53. Flood Wall Gate Test Report French Limited Site, February 1990

54. North Pit Remediation Report French Limited Site, November 6, 1989

55. Workplan for the Shallow Aquifer Pumping Tests for the French Limited Site, July 22, 1988
(Additional Title - Pumping Test Program for Shallow Alluvial Aquifer Zone)

56. French Limited Site Hurricane Gilbert Preparation Report October, 1988

57. Riverdale Lake Area Remediation Program, August 15, 1989

58. Addendum to Quality Assurance Project Plan for the French Limited Site In Situ Biodegradation Demonstration Phase III, February 16, 1990

59. Potable Water Well Installation Report French Limited Site, December 7, 1988

60. Bioresidue Fixation Alternatives Evaluation Report French Limited Site March 20, 1989

61. Ambient Air Impact Risk Assessment Report, May 5, 1989

62. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume I of III - Summary Report and Appendices A-H, July 1991

63. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume II of III - Appendices I-M, June 1991

64. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume III of III - Appendices N-P, June 1991

65. French Ltd. Remediation Design Report Executive Summary Bioremediation Shallow Aquifer July 1991

66. BioGEE International, Inc., Project Report Biotreatability Study Using Isolated Indigenous Organisms, April 15, 1994

67. Black EPA Binder

68. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 1, Report, Appendices A-E

69. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 2, Appendix F

70. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 3 Appendix F continued

71. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 4, Appendix G

72. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 5, Appendix H

73. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 6, Appendix H continued

74. Equipment Evaluation Phase IV Report November, 1987 Monthly Report

75. Equipment Evaluation Phase IV Report December, 1987 Monthly Report

76. *Microfiche Field Reports 1988 -small box*

77. Monthly Progress Report, January, 1992

78. Monthly Progress Report, January, 1992, Appendices A-C

79. Monthly Progress Report, January, 1992, Appendices E-F

80. Monthly Progress Report, January, 1992, Appendix G

81. Monthly Progress Report, February, 1992

82. Monthly Progress Report, February, 1992, Appendices A-B

83. Monthly Progress Report, February, 1992, Appendices C-1

84. Monthly Progress Report, February, 1992, Appendices C-2

85. Monthly Progress Report, February, 1992 , Appendices D-E

86. Monthly Progress Report, March, 1992

87. Monthly Progress Report, March, 1992, Appendix A

88. Monthly Progress Report, April, 1992

89. Monthly Progress Report, April, 1992, Appendices A-B

90. Monthly Progress Report, May, 1992

91. Monthly Progress Report, May, 1992, Appendices A-B

92. Monthly Progress Report, June, 1992

93. Monthly Progress Report, June, 1992, Appendices A-B

94. Monthly Progress Report, July, 1992

95. Monthly Progress Report, July, 1992, Appendices A-B

96. Monthly Progress Report, July, 1992, Appendices B1-B22 Vol. 1 of 3

97. Monthly Progress Report, July, 1992, Appendices B1-B22 Vol. 2 of 3

98. Monthly Progress Report, July, 1992, Appendices B1-B22 Vol. 3 of 3

99. Monthly Progress Report, August, 1992

100. Monthly Progress Report, August, 1992, Appendices A-B

101. Monthly Progress Report, September, 1992

102. Monthly Progress Report, September, 1992, Appendices A-B

103. Monthly Progress Report, October, 1992

104. Monthly Progress Report, October, 1992, Appendices A-B

105. Monthly Progress Report, November, 1992

106. Monthly Progress Report, November, 1992, Appendices A-B

107. Monthly Progress Report, December, 1992

108. Monthly Progress Report, December, 1992, Appendices A-B

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124. Monthly Progress Report, April, 1994

125. Monthly Progress Report, May, 1994

126. Monthly Progress Report, June, 1994

127. Monthly Progress Report, July, 1994

128. Monthly Progress Report, August, 1994

129. Monthly Progress Report, September, 1994

12 Large Brown Folders:

1. Administrative Record Index - 2 folders
   Administrative Record 09-26-79 thru 05-29-83
   Administrative Record 06-03-83 thru 11-28-83
   Administrative Record 02-28-84
   Administrative Record 03-09-84
   Technical Comments on Remediation Investigation Report 2-84
   Supplemental Investigation - Resource Engr. 1-84
   Administrative Record 3-9-84

2. Administrative Record 08-31-84
   Administrative Record 10-29-84 thru 01-22-85
   French Ltd. Technical and Regulatory Concepts for In-Place Closure, 09-84
   Supplementary Investigation, May 1984
   French Ltd. Field Activities Work Plan, February 1985
   Supplementary Investigation Attachments, May 1985

3. Administrative Record 02-04-85
   Remedial Investigation, Vol. I Report, April 1985
   Remedial Investigation, Vol. II Appendices, April 1985

4. Administrative Record 04-08-85 thru 11-26-85
   Administrative Record 02-14-86 thru 04-04-86
   Technical Report for Resource Engineering, 12-03-85
   Appendix QA Program for French Ltd., 12-18-85
   1985 Field Investigation Report Appendices, January, 1986
   1985 Field Investigation Report , January, 1986

5. Administrative Record 04-01-86
   Remedial Investigation Report Appendices, Vol. II, April, 1986

6. Administrative Record 4-1-86

7. Administrative Record 05-08-86 thru 05-12-86
   Administrative Record 06-01-86
   Administrative Record 01-05-87

Remedial Investigation Report, June 1986
Laboratory Evaluation of Biodegradation, 12-86
1986 Field Investigation Hydrology Report, 12-86
Endangerment Assessment Report, 2-87

8. Feasibility Study, March 1987

9. Administrative Report 03-11-87 thru 03-25-87
Administrative Report 4-1-87
Administrative Report 4-7-87
In Situ Biodegradation Demonstration Phase III QA Project Plan 3-87
Endangerment Assessment Report, 4-87
Proposed In Situ Biodegradation Demonstration French Limited Site Phase III 4-87

10. Administrative Report 4-15-87 thru 5-I-87
Administrative Report 5-21-87 thru 7-2-87
French Limited Focused Feasibility Study, ERT 5-87
Revised Field Evaluation of Biodegradation at French Site Phase II Vol. I
-Revised 7-10-87

11. Administrative Report 7-20-87 - 11-23-87
Administrative Report Undated Documents 000122-000134
In Situ Biodegradation Demonstration Report Vol. I Executive Summary 10-87
French Limited Site Work Plan Vol. I Project Activities and Sample Plan

12. Texas Air Control Board Regulations I thru IX
Standard Exemption List
Application for Permit

During the month of October, the status of both libraries have been reviewed and the above information found to be accurate.

9.0 WETLANDS RESTORATION

9.1 Summary of Activities and Progress

Developed detailed site work plan.

Started mobilization of the civil contractor on site.

Continued to identify and quantify sources of the project vegetation.

State Archeology group issued full clearance for the Brownwood project.

Developed a draft public relations plan.

Designed notice signs for the entrances to the project area.

Negotiated with the owners of the remaining 1/3 interest in six lots in the project area; agreed upon purchase conditions; FLTG, Inc. will purchase the property and then deed to the city of Baytown.

9.2 Problem Areas and Solutions

No current problems.

9.3 Problems Resolved

Problem	Solution
Land ownership	FLTG, Inc. will purchase the lots in the project area.
Archeology impact	The State Archeology group approved the project.
Buffer zone	Project access roads will be blocked.

9.4 Deliverables Submitted

September, 1994, Monthly Report.

9.5 Upcoming Events and Activities

FLTG, Inc. to acquire selected lots and transfer ownership to the city of Baytown.

Start civil work on site.

Identify and locate flora species.

Develop detailed cost estimate for Brownwood.

Develop restoration schedule.

Develop forecast of maintenance requirements.

Develop community relations plan.